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A Report on Activities Under the National Traffic and Motor Vehicle Safety Act of 1966 and the Motor Vehicle Information and Cost Savings Act of 1972

January 1, 1982—December 31, 1982
U.S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration

Motor Vehicle Safety 1982

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National Highway Traffic Safety Administration

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MOTOR VEHICLE SAFETY 1982

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National Traffic and Motor Vehicle Safety Act
of 1966 as Amended
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CONTENTS

	Page
INTRODUCTION	
The Motor Vehicle Safety Problem	1
Trends	2
Program Emphasis	4
SAVING LIVES	
Occupant Protection	10
National Safety Belt Campaign	10
Child Safety Seats	11
Automatic Protection	12
Vehicle Structure	13
Side Impact Protection	13
Pedestrians	13
Injury Causes	14
Biomechanics	15
Review of Regulatory Actions	16
Improved Use of Research Resources	24
AVOIDING ACCIDENTS	
Visibility and Vehicle Conspicuity	25
Lighting	26
Vehicle Identification Number	27
Power Windows	27
Speedometers and Odometers	28
Multipiece Truck Rims	28
Controls and Displays	28
Brakes	29

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CONTENTS (Continued)

	Page
FUEL ECONOMY	31
Light Truck Fuel Economy	32
Fuel Economy Enforcement	32
ENFORCEMENT	
Safety Defects	35
The Investigative Process	35
1982 Recalls	
Inquiries, Engineering Analyses and Formal Investigations	37
Recall Audits	38
Vehicle Safety Compliance	38
Compliance Testing	38
1982 Compliance Testing	39
Uniform Tire Quality Grading	40
Odometer Tampering	40
Imported Motor Vehicles	41
Litigation	41
Administrative Enforcement	43
CONSUMER ACTIVITIES	
Bumpers	45
Auto Safety Hotline	45
Uniform Tire Quality Grading	46
New Car Assessment Program	47
Consumer Information Regulations	48
Consumer Outreach	51

BEST COPY AVAILABLE

CONTENTS (Continued)

Page

SUPPORT FOR MOTOR VEHICLE SAFETY

National Center for Statistics and Analysis . 55
Vehicle Research and Test Center 57
Harmonization of Regulations 63
Management Improvements 64
Civil Rights 65

APPENDICES

A. Statistical Compilation A-1
B. Funding Tables B-1
C. Publications of the National Highway Traffic Safety Administration C-1
D. Current Research Grants and Contracts and the Problems They Address D-1

TABLES

1. Trends in Motor Vehicle Traffic Deaths in the United States--1962, 1970, 1974-1982 3
2. National Highway Safety Administration Historical and Legislative Background 6
3. List of Federal Motor Vehicle and Fuel Economy Standards and Regulations, Effective in Calendar Year 1982 17
4. 1982 New Car Assessment Program Crash Test Results 49
5. Summary of 1982 Data Acquisition and Statistical Activities 58

FIGURES

1. National Highway Safety Traffic Administration Organizational Chart .. 66

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INTRODUCTION

The National Highway Traffic Safety Administration (NHTSA) was established by the Highway Safety Act of 1970, as the successor to the National Highway Safety Bureau, to carry out safety programs under the National Traffic and Motor Vehicle Safety Act of 1966 and the Highway Safety Act of 1966. It is responsible for reducing deaths, injuries, and economic losses resulting from traffic accidents. This is accomplished by setting and enforcing safety performance standards for motor vehicles, and through grants to State and local governments to enable them to organize, develop, and implement their highway safety programs more effectively.

NHTSA investigates safety defects in motor vehicles, sets and enforces fuel economy standards, provides leadership to the States and local communities to reduce the threat of drunk drivers, promotes the use of safety belts and child safety seats, investigates odometer fraud, and provides consumer information on motor vehicle safety and the comparative crashworthiness of new cars. It also conducts research to demonstrate the relationship between driver skill and behavior and traffic safety and to develop the most efficient and effective means of bringing about safety improvements.

The Motor Vehicle Safety Problem

Safer motor vehicle travel continues to be a prominent national and local concern, with government at all levels combining resources to find ways to reduce fatalities and injuries and their economic consequences.

When someone age 44 or younger dies in this country, it is more likely to be from a motor vehicle crash than from any other cause. While there is no "typical" motor vehicle accident, statistical profiles indicate that most involve a passenger car; occur on a principal roadway in a rural area and during normal weather conditions; and more drivers are killed than passengers.

Alcohol continues to be the single greatest cause of traffic accidents and is involved in at least half of all traffic fatalities. And, failure to use the safety belts that are in nearly every passenger car on the road today results in twice as many fatalities and injuries than would otherwise occur.

The economic costs of motor vehicle accidents are conservatively estimated to be $57 billion each year.* Of this

* Estimate based on 1980 data.

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total, about $21 billion result from property damage, $14 billion is attributable to lost productivity, $3 billion result from medical costs, and nearly $19 billion are caused by other costs, such as insurance expenses, legal and court fees, emergency services, coroner/medical examiner costs, and the administrative expenses of public assistance programs.

Trends

A total of 43,945 persons lost their lives in traffic accidents in 1982, an 11 percent decrease from 1981 and the lowest fatality total since 1963. Nearly 5,400 fewer people were killed last year than in 1981. This dramatic reduction occurred despite a 1.3 percent increase in highway travel and is second only to the fatality decrease experienced in 1974-75 when fatalities dropped from a high of 54,589 in 1972, to 45,196 in 1974, and 44,525 in 1975 (Table 1).

The fatality rate, the number of fatalities per 100 million vehicle miles of travel, also declined between 1981 and 1982 from 3.17 to 2.76--the lowest fatality rate in history. The fatality rate is a measure of the risk of death that a person is exposed to when travelling.

This reduction in the fatality rate is particularly dramatic when viewed from a historical perspective. In 1940, 32,914 persons were killed as a result of 302.2 billion miles of travel, and the fatality rate that year was 10.0. By 1961, the rate had decreased to 4.9, but the downward trend reversed in 1962 and began increasing. In 1966, when legislation was passed to create a federal traffic safety program, there were nearly 96 million motor vehicles on the road and the fatality rate had climbed to 5.5. In 1982, with travel at 1.575 trillion vehicle miles and fatalities at 43,945, the fatality rate of 2.76 deaths per 100 million vehicle miles is the lowest it has been since at least the early 1920's when the first records were kept on miles travelled in a given year. If the relative risk of driving in 1982 had been the same as in 1940 when the fatality rate was 10.89, we would have experienced as many as 170,000 traffic deaths in 1982.

The substantially reduced risk of death or injury per mile of travel can be attributed to many factors. While we don't know all the reasons, they include safety improvements in motor vehicles and roadways, reduced speeds, safety belt and child safety seat use, improved traffic law enforcement and emergency medical services, and increased national awareness of the dangers of drunk driving.

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TABLE 1

TRENDS IN MOTOR VEHICLE TRAFFIC DEATHS IN THE UNITED STATES
1961, 1970, 1972, 1974-1982

Item	1961	1970	1972	1974	1975	1976	1977	1978	1979	1980	1981	1982
Deaths	36,285	52,627	54,589	45,196	44,525	45,523	47,878	50,331	51,093	51,091	49,301	43,945
Motor Vehicle Travel (billion of vehicle miles)	737	1,110	1,260	1,281	1,328	1,402	1,467	1,545	1,529	1,528	1,556	1,592
Registered Motor Vehicles (100,000)	766	1,112	1,226	1,349	1,379	1,435	1,473	1,536	1,596	1,616	1,641	1,653
Resident Population (100,000)	1,830	2,040	2,093	2,133	2,155	2,176	2,198	2,221	2,246	2,272	2,293	2,315
Licensed Drivers (100,000)	887	1,115	1,184	1,254	1,298	1,340	1,381	1,408	1,433	1,453	1,471	1,503
Death Rates												
Per Hundred Million Vehicle Miles	4.92	4.74	4.33	3.53	3.35	3.25	3.26	3.26	3.34	3.34	3.17	2.76
Per 100,000 Registered Vehicles	47.37	47.31	44.54	33.50	32.28	31.73	32.51	32.76	32.01	31.62	30.04	26.59
Per 100,000 Resident Population	19.83	25.80	26.08	21.18	20.66	20.92	21.79	22.66	22.75	22.49	21.50	18.98
Per 100,000 Licensed Drivers	40.91	47.18	46.10	36.03	34.31	33.96	34.66	35.74	35.66	35.16	33.52	29.24
Vehicle and Driver Relationship												
Ratio, Registered Motor Vehicles to Licensed Drivers	0.86	1.00	1.03	1.08	1.06	1.07	1.07	1.09	1.11	1.11	1.12	1.10
Ratio, Registered Motor Vehicles to Resident Population	0.42	0.55	0.59	0.63	0.64	0.66	0.67	0.69	0.71	0.71	0.72	0.71
Ratio, Licensed Drivers to Resident Population	0.48	0.55	0.57	0.59	0.60	0.62	0.63	0.63	0.64	0.64	0.64	0.65

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Program Emphasis

Improving the safety of motor vehicle travel is among the most critical public health issues facing the Nation today, and the Federal Government will keep its strong commitment to motor vehicle safety by continuing those regulatory, enforcement, and public education programs that reduce deaths and injuries effectively and efficiently.

During 1982, NHTSA continued to pursue programs oriented to the vehicle and programs oriented to the driver and the passenger, emphasizing the activities with the most potential for success. More attention was paid to data collected by NHTSA and the States to measure progress and to identify shortcomings.

The highway safety portions of the Agency's mission were stressed, primarily safety belt and child safety seat usage and mounting efforts to combat drunk driving. Alcohol abuse is the single greatest cause of motor vehicle accidents and is involved in at least half of all traffic fatalities. Similarly, failure to use safety belts contributes to half of all fatalities and injuries in motor vehicle crashes.

In April 1982, the President announced a major program to raise the public consciousness about drunk driving and to reduce it tragic consequences. He also announced the start of a national safety belt campaign to increase public acceptance and usage of safety belts and child seats.

The alcohol effort advocates community-based alcohol programs and encourages State and local governments and the private sector to create comprehensive programs with swift, sure sanctions for drunk drivers. A Presidential Commission on Drunk Driving was appointed to serve as the national focal point for efforts to reduce the incidence of drunk driving and to further encourage state and local efforts to deal with the drunk driving issue.

The national safety belt campaign was designed to reach out to every age group with persuasive information on the lifesaving benefits of wearing safety belts.

The Agency also continued its research on improved motor vehicle safety technology. An expanded data collection and analysis capability has given NHTSA engineers a better understanding of what causes motor vehicle accidents and the kinds of human trauma that result. In the crash avoidance area, priority was placed on improvements in motor vehicle lighting and braking. Considerable attention was given to heavy truck braking since heavy vehicles are overinvolved in fatal collisions. Frontal crash protection research priorities included improved steering columns, windshields, instrument panels, and frontal structures. In the side impact

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area, emphasis was on structural and padding modifications.

Enforcing the federal laws, standards, and regulations governing motor vehicles is one of NHTSA's most critical safety responsibilities. NHTSA works with the motor vehicle industry to foster a productive relationship on enforcement matters so that safety problems can be resolved promptly and in a constructive manner. As evidence of the benefits of this emphasis, more than half of the 99.5 million vehicles that have been recalled since 1966 to correct safety defects were recalled by the manufacturers after NHTSA involvement but without the need for formal legal action by NHTSA.

An effective way to implement safety advances in motor vehicles is through production-oriented safety research (i.e., research which encourages the incorporation of safety improvements into the vehicle design and manufacturing cycle). NHTSA's research program is using its resources more efficiently and also is expected to result in more realistic products with a greater chance of being used in the States and in production vehicles than some of the research products of previous years.

The Agency also conducted a comprehensive review of each of its research projects to develop a safety priorities plan which ensures that agency resources are spent on programs that will produce safety benefits. The plan embodies a reasonable balance between motor vehicle and highway safety activities, considers a broad range of available and potential solutions, and it describes what steps NHTSA intends to take to reduce traffic casualties.

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TABLE 2

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
HISTORICAL AND LEGISLATIVE BACKGROUND

Year	Traffic Fatalities*		Public Law
1924 to 1966	18,400 50,694	Federal Government organizations concerned with highway safety: Department of Health, Education, and Welfare Department of Commerce Post Office Department Department of Defense General Services Administration Interstate Commerce Commission Interdepartmental Highway Safety Board President's Committee for Highway Safety	
1924	18,400	National Conference on Street and Highway Safety (convened by Secretary of Commerce, Herbert Hoover).	
1937	37,819	Second National Conference on Street and Highway Safety Report, *Guides to Traffic Safety*.	
1946	31,874	Third National Conference produced an *Action Program for Highway Safety*.	
1954	33,890	The President's Committee for Traffic Safety established and adopted the *Action Program*.	
1956	37,965	First Congressional interest: Subcommittee Health and Safety of the House Committee on Interstate Commerce.	
1958	35,331	Secretary of Commerce authorized to assist in carrying out the President's Action Program and to cooperate with the States in furthering highway safety.	
		Interstate Compacts for Traffic Safety (Beamer Resolution).	P.L. 85-684
1959	36,223	Report by the Secretary of Commerce to Congress on magnitude of traffic safety problems, and the role the Federal Government should play in attacking them.	
		Requirements for Passenger-Carrying Motor Vehicles Purchased for Use by the Federal Government to Meet Certain Safety Standards.	P.L. 85-515
		Prohibition of Use in Commerce of Any Motor Vehicle Which Discharges Substances in Amounts Found by the Surgeon General to Be Injurious to Human Health.	P.L. 86-493
1960	36,399	Registration of Automobile License Revocations (National Driver Register). Amendments Amendments	P.L. 86-660 P.L. 87-359 P.L. 89-563
1961	36,285	Requirements for Passenger-Carrying Motor Vehicles for Use by the Federal Government to Meet Certain Safety Standards	P.L. 88-515
		Hydraulic Brake Fluid Specifications.	P.L. 87-637
1962	38,980	Standards for Automobile Seat Belts Sold or Shipped in Interstate Commerce.	P.L. 88-201
1965	47,089	Amendment to the Federal-Aid Highway Act providing for Voluntary State Highway Safety Standards (Baldwin Amendment).	P.L. 89-139
1966	50,894	National Traffic and Motor Vehicle Safety Act of 1966. Established the National Traffic Safety Agency in the Department of Commerce.	P.L. 89-563
		Highway Safety Act of 1966. Established the National Highway Safety Agency in the Department of Commerce	P.L. 89-564
		Department of Transportation Act of 1966.	P.L. 89-670
1967	50,724	Executive Order 11357 combined the two agencies in the Department of Transportation as the National Highway Safety Bureau.	
1968	52,725	*Report of the Secretary's Advisory Committee on Traffic Safety* (Department of Health, Education, and Welfare).	
		National Traffic and Motor Vehicle Safety Act of 1966, amendments terminated temporary exemption authority by statute 3 years after enactment.	P.L. 90-286

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TABLE 2

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
HISTORICAL AND LEGISLATIVE BACKGROUND (Continued)

Year	Traffic Fatalities*		Public Law
1970	52,627	National Traffic and Motor Vehicle Safety Act of 1966, amendments.	P.L. 91-265
		Federal-Aid Highway Act of 1970, creates National Highway Traffic Safety Adminstration.	P.L. 91-605
		Report of the President's Task Force on Highway Safety: *Mobility Without Mayhem.*	
1972	54,589	Motor Vehicle Information and Cost Savings Act.	P.L. 92-513
		National Traffic and Motor Vehicle Safety Act Amendments of 1972.	P.L. 92-548
1973	54,052	Federal-Aid Highway Act of 1973.	P.L. 93-87
1974	45,196	Motor Vehicle and Schoolbus Safety Amendments of 1974.	P.L. 93-492
1975	44,525	Federal-Aid Highway Amendments of 1974.	P.L. 93-643
		Energy Policy and Conservation Act established the Automotive Fuel Economy Program by adding a new Title V to the Motor Vehicle Information and Cost Savings Act.	P.L. 94-163
1976	45,523	Federal-Aid Highway Act of 1976.	P.L. 94-280
		National Traffic and Motor Vehicle Safety Act Amendment and Authorization.	P.L. 94-346
		Motor Vehicle Information and Cost Savings Act Amendments of 1976.	P.L. 94-364
1977	47,878	Auto Fuel Economy Program amendment, contained in the Department of Energy Organization Act.	P.L. 95-91
1978	50,331	Highway Safety Act of 1978 (including as Title II of the Surface Transportation Assistance Act of 1978), and also includes an amendment to section 158(b) of the National Traffic and Motor Vehicle Safety Act of 1966.	P.L. 95-599
		Auto Fuel Economy Program amendments, contained in the National Energy Conservation Policy Act.	P.L. 95-619
1980	51,091	Automobile Fuel Efficiency Act of 1980 amending Title V of the Motor Vehicle Information and Cost Savings Act.	P.L. 96-425
1981	49,301	Omnibus Budget Reconciliation Act of 1981, Title XI, sections 1107-1109 amending the Highway Safety Act.	P.L. 97-35
1982	43,945	Motor Vehicle Safety and Cost Savings Authorization Act of 1982.	P.L. 97-331
		Alcohol Incentive Grant Program and National Driver Register Improvements.	P.L. 97-364

Source: Fatalities: 1924-74, National Center for Health Statistics, HEW, and State annual summaries (adjusted to 30-day deaths).
1975-1982, Fatal Accident Reporting System (FARS) NHTSA.

*Traffic fatalities are deaths from motor vehicle accidents occurring on trafficways. Statistics represent deaths occurring within 30 days after the date of the accident, which constitute approximately 98 percent of all traffic deaths.

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SAVING LIVES

If the fatality rate has been reduced significantly because of safer roadways, improvements in the design of motor vehicles and better informed and trained drivers, why is the annual motor vehicle casualty toll still so high? The answer is relatively simple, but the solutions are very complex. There have been large increases in people, drivers, motor vehicles, and travel. Over the last decade, population increased by 10.6 percent, motor vehicles by 35.8 percent, drivers by 25.9 percent, and travel by 24.7 percent. During this same period, the ratio of vehicles to population increased by 22 percent, and the ratio of licensed drivers to population increased from 57 percent to 64 percent. In addition, American social mores continued to approve tacitly of drinking and driving, notwithstanding the fact that alcohol is involved in at least half of the fatal motor vehicle accidents each year.

In setting priorities for 1982, NHTSA identified and directed resources to programs that offered a realistic promise of bringing about fewer injuries and deaths. Motor vehicle safety standards and regulations were reviewed to determine whether they met the statutory requirements that they be "reasonable, practicable, appropriate, and meet the needs of motor vehicle safety," and further, whether the safety or consumer-related goals and policies established by Congress in its related legislation were being met.

In addition, NHTSA made improvements in its own data collection system and assisted the States to improve their systems to measure highway safety progress, identify shortcomings, and to determine which safety areas have the most promise for significant improvement.

NHTSA's accident data collection and analysis system was especially helpful in identifying priorities. For example, the Agency's National Accident Sampling System identifies problem areas by providing a statistically representative sample of police-reported traffic accidents. The system has 50 teams operating nationwide and is capable of investigating 10,000 accidents each year.

The Agency also evaluated the cost of regulated safety features, considering NHTSA data along with information supplied by the automotive industry to the Bureau of Labor Statistics. Based on these data, NHTSA estimates that changes made since 1968 to meet federal safety standards cumulatively amount to about $370 per vehicle, or roughly 4 percent of the price of a typical 1982 model year passenger car. The additional weight of these safety features adds approximately $200 in fuel expenses during the life of an average vehicle.

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Occupant Protection

During the year, 23,330 passenger car occupants were killed in crashes and an estimated 1.5 million more were injured. Half of these deaths and injuries could have been prevented by the use of safety belts that prevent occupants from impacting the vehicle interior or from being ejected in a crash. However, NHTSA estimates that only about 11 percent of drivers and even fewer passengers used the safety belts that have been standard equipment in all passenger cars since 1968.

National Safety Belt Campaign

NHTSA's National Safety Belt Campaign that began in 1981 was expanded in 1982 to encourage more motorists to take advantage of the effective and available protection offered by safety belts and child safety seats.

The goal of the campaign is to underscore the benefits of safety belts by increasing public awareness of the risk of being involved in a crash and of the tremendous forces released in a crash; and by encouraging organizations and corporations to promote safety belt use among their members, employees, and constituencies.

The campaign is appealing to people where they live, work, and form their opinions, working with as many influential organizations as possible and encouraging them to make a long-term commitment to help communicate the safety belt message. This approach is being taken because safety belt use can best be encouraged by the institutions that have the most influence on behavior and with which motorists regularly come in contact. A message that is delivered by a familiar face in the workplace, the education system, or in social contacts is more likely to make a lasting impression.

NHTSA has conducted extensive research to learn about public attitudes toward safety belts so that effective information can be produced to encourage belt use. Some of the findings were:

- It has been reported that many drivers and passengers interviewed did not understand how the locking mechanism of their shoulder belt retractor operated, and, therefore, did not believe that their shoulder belt would protect them.

- A high percentage of American adults are receptive to the idea of being persuaded to wear safety belts more often. About 60 percent of the adult population can be identified as a target group for increased belt use.

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- Eighty percent of the montoring public indicated they would wear safety belts more frequently if they were offered a reduced rate on their insurance (i.e., economic incentives may encourage belt use).

- A substantial majority of American adults, even among those who do not wear safety belts regularly, are aware that people in general should use safety belts.

- Seventy-one percent of the American public feels strongly that drivers are responsible for the safety of passengers in their cars. Almost 90 percent of people interviewed in a national survey said they would wear their safety belts if asked to do so directly by the driver.

Child Safety Seats

Interest in child safety seats has grown dramatically in recent years. Twenty States had child safety seat laws in effect by the end of 1982, and many other States are considering legislation. Even in those States without laws, child safety seat loaner programs are increasing in popularity, enabling parents who cannot afford to purchase a child safety seat to borrow one.

NHTSA's new standard on child restraint systems that became effective in 1981 attempts to make safety seat installation and use easier. It requires that child safety seats be designed to be secured by means of vehicle lap belts, and that they meet a dynamic test for structural, displacement, and acceleration requirements when secured by the lap belts, and also by an additional top strap (tether), if such a strap is included in the design. It also specifies certain dimensions and material properties, and requires that installation and use instructions be provided with each unit.

The public reaction as well as the reaction of the child seat manufacturers have been very positive. Usage for children ages 1 to 4 has nearly doubled, from 11 percent to 20 percent, while usage for infants has remained at about 40 percent. The child safety seat manufacturers are producing safer, reasonably priced products that are more convenient to use.

Even with many States requiring child safety seat usage and increasing parental awareness of the importance of the devices, a significant number of parents do not know how to install and use them correctly, effectively reducing their safety benefits. Many also find that it is very difficult to seat a child into the devices properly.

Two test programs to develop information on the proper

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location and strength of child safety seat tether anchorages were completed in 1982. The results indicate that the best protection is offered when anchorages are located behind the middle of the vehicle's seat, and that a design strength of 1,200 pounds is adequate to accommodate older children. The Agency also evaluated the need for a new (lower) requirement for the pressure needed to open the buckles of child seats. Many parents have difficulty operating the buckles on certain child seats; a lower pressure release requirement would make it easier for parents to operate the buckles and still prevent young children from unbuckling themselves.

Automatic Protection

On October 23, 1981, NHTSA rescinded the automatic protection requirements of Federal Motor Vehicle Safety Standard No. 208, "Occupant Crash Protection," which would have required that a front seat passenger car occupant be automatically protected from serious injury as simulated in a 30 mph test crash.

State Farm Mutual Automobile Insurance Company and the National Association of Independent Insurers legally challenged the rescission, and on June 1, 1983, the U.S. Court of Appeals for the District of Columbia ruled in their favor. In August, the court issued an order establishing September 1, 1983, as the effective date for automatic protection requirements of the standard. The Department of Transportation petitioned the U.S. Supreme Court for an appeal of that decision, and in November 1982, the Supreme Court agreed to hear arguments on the case. Subsequently, the September 1, 1983 effective date was stayed.

After the recission of the automatic protection standard, the Agency continued to encourage the automotive industry to voluntarily develop and market advanced safety technologies in motor vehicles. For example, the Agency plans to develop an aftermarket air bag system that can be installed in existing cars, and expects to begin a program to retrofit them in 500 state police cars in a demonstration project beginning in early 1983. Discussions were held with the General Services Administration (GSA) concerning an air bag demonstration program. The final agreement will involve the purchase of about 5,000 model year 1985 compact-sized sedans with driver's side air cushion restraint systems installed as original equipment. It is anticipated that the program will help to establish a substantial market for air bags by demonstrating their fatality and injury-reducing effectiveness, as well as their reliability and maintainability.

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Vehicle Structure

In a crash, the vehicle structure must perform several functions to protect occupants. It must provide a zone of protection for the occupants to prevent intrusion by a striking vehicle; a restraint system to control occupant deceleration; a controlled crush of the surrounding structure to absorb energy and cushion and protect the passenger compartment; and interior surfaces that reduce injury when occupants strike them.

During 1982, research in this area concerned improving the test procedures and equipment used to evaluate vehicle structural performance. Development and testing also continued on fixed barriers, moving impact barriers, human surrogates, rollover test devices, and improving test protocols.

Several analytical procedures are being developed and used to evaluate structural performance. These procedures will simulate actual collisions and will permit refinements to be made to frontal structural design without the need for a large series of expensive crash tests.

Side Impact Protection

The fatalities and injuries resulting from side impact collisions comprise a major part of the cost of motor vehicle accidents. About 7,600 passenger vehicle occupants were killed and about 20,000 were seriously injured in side impacts in 1982. Usually, the fatalities occur in high speed side collisions involving extensive occupant compartment intrusion and possible occupant ejection.

In July 1982, NHTSA terminated rulemaking to amend Standard No. 214, "Side Door Strength." The contemplated amendment, which specified higher levels of impact resistance, was terminated because the Agency determined that a substantial amount of research remains to be completed before the standard could be upgraded.

Pedestrians

There were 7,331 pedestrian fatalities in 1982. Accident studies conducted by NHTSA and based on information from 2,000 pedestrian accidents indicate that head impact with the ground (secondary impact) is the most frequent cause of head injury, but head impact with the front structure of passenger cars results in the most severe head injury. The data also point to the front bumper, hood edge, and hood as the principal sources of most of the pedestrian injuries.

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The first phase of a pedestrian accident reconstruction project was completed which involved impact tests with a device designed to simulate head/vehicle interaction. Human injuries and vehicle damage were successfully simulated and the results will be used to define and to better understand what causes pedestrian head injuries. In addition, test devices were designed which simulate adult chest and upper leg- pelvis impact responses.

In response to public comments on the Agency's 1981 Notice of Proposed Rulemaking on pedestrian impact, a research testing program was begun in 1982 to obtain additional pedestrian impact information. A second phase of this research program is slated to begin in 1983.

Injury Causes

The results of an analysis of the causes of injuries and fatalities in motor vehicle accidents was reported in a series of six technical papers presented by NHTSA at the Society of Automotive Engineers International Congress and Exposition, February 22-26, 1982. These documents were the basis for much of the Agency's 1982 research and development activities involving crashworthiness.

A summary paper presented the methodology and results of an analysis of the available information on motor vehicle safety which could be used to provide a basis for establishing priorities for future government and private efforts to improve crash protections.

The analysis was stimulated by several factors: (1) several years had elapsed since NHTSA published a plan for motor vehicle safety research and development; (2) motor vehicles have changed substantially; (3) the quantity and quality of accident data and vehicle crash performance information have increased dramatically over the past 5 years; and (4) government policies and the amount of government and private sector resources available for future efforts have changed. The study took the Agency's automated data files on personal injury as the baseline information on injuries sustained by restrained and unrestrained occupants of all types of vehicles and by pedestrians and cyclists. This information was analyzed according to the magnitude of harm sustained, the potential for reduction in harm, and the relative adequacy of data and methods available to find solutions. The primary measures used were: crash severity, injury severity, injured body region, and source of injury in the vehicle. Secondary measures were: car impact direction, occupant seating position, ejection path (if ejected), and restraint use.

Five other papers dealt with: passenger car and light vehicle frontal impact protection; passenger car and light vehicle rear impact and rollover protection; the role of the side of the motor vehicle in crash protection; the role of the

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vehicle front end in pedestrian impact protection; and occupant motion in motor vehicle crashes.

Biomechanics

Biomechanics is the field of study that applies engineering principles and techniques to understand and control impact trauma in humans. Biomechanical data assists in setting tolerance levels for human injury in motor vehicle accidents and in the development of test tools which measure chances of injury.

Anthropomorphic dummies, designed to provide mechanical simulations of the human body, are used in NHTSA's vehicle crash tests to measure the injury prevention potential of motor vehicles in the event of a crash.

1982 projects involving these human-like dummies included:

- The testing and evaluation of an improved "3-year old" child dummy.
- The performance evaluation of infant, 3- and 6-year old sized child dummies developed in Europe for possible use in the United States.
- The development of dimensional and shape specifications and the building of master models of small, mid-sized and large human pelvic bones which are needed to evaluate safety belt restraint systems.

A master body surface form for an average-sized adult male dummy and its corresponding special purpose seat was delivered to the agency. Necessary data for a small adult female dummy and a large adult male dummy was also obtained.

Trauma research concentrated on the effects of side impacts. In 1982, NHTSA made a presentation at the ninth International Experimental Safety Vehicle Conference in Kyoto, Japan, outlining an injury criterion capable of estimating the probability of an occupant death due to a lateral chest impact. Other trauma research involved the development of methodology to relate head injury severity to observable injury indicators identified by using X-ray scanning techniques.

Other biomechanical activities included improvements to and the validation of a three-dimensional crash victim simulator capable of mimicking either an occupant or pedestrian impact response in a crash situation, and analysis of data to characterize the response of the human neck during

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an impact.

Review of Regulatory Actions

NHTSA continually reviews existing and pending federal motor vehicle safety standards and regulations to consider each in light of current circumstances and motor vehicle safety requirements. (See Table 3 on page 17.)

Priority reviews completed in 1982 included FMVSS No. 214, "Side Door Strength." The evaluation showed that this regulation prevents an estimated 480 fatalities and 4,550 injuries each year in single-vehicle side impact crashes with fixed objects. In multi-vehicle crashes, the standard had little or no effect on fatalities. It does, however, prevent about 4,920 serious injuries per year because door intrusion into the passenger compartment is reduced.

A review of FMVSS No. 202, "Head Restraints," found that these safety devices in passenger cars have significantly reduced the frequency of whiplash injuries in rear impact crashes; some 65,000 such injuries appear to be eliminated each year. Fixed head restraints are nearly twice as effective as adjustable head restraints because 75 percent of adjustable ones are left in the down position, providing inadequate protection to an occupant of average height.

During 1982, these five standards in the crashworthiness series were modified:

FMVSS No. 201, "Occupant Protection in Interior Impact." On July 13, 1981, Blue Bird Body Company petitioned NHTSA to amend Standard No. 201 to exclude schoolbuses from the seatback impact requirements, contending that schoolbuses were already covered by similar requirements in Standard No. 222, "School Bus Seating and Crash Protection." The Agency agreed and issued a Notice of Proposed Reulemaking on June 10, 1982, proposing to exclude schoolbuses from the seatback impact requirements of Standard No. 201. The final rule was issued on November 22, 1982, with an effective date one month later.

FMVSS No. 203, "Impact Protection for the Driver from the Steering Control System." In September 1976, General Motors petitioned NHTSA to amend Standard No. 203 to permit forces measured on the steering column during the impact test to exceed 2,500 pounds for intervals not to exceed 3 milliseconds cumulatively. The Agency first denied the petition, but after review of additional data submitted by GM, published a Notice of Proposed Rulemaking on October 1, 1981, granting the petition. A final rule was issued on October 28, 1982, with an effective date of December 2, 1982.

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TABLE 3

LIST OF FEDERAL MOTOR VEHICLE SAFETY AND FUEL ECONOMY STANDARDS AND REGULATIONS, EFFECTIVE IN CALENDAR YEAR 1982

Federal motor vehicle safety standards are substantive documents establishing minimum levels of vehicle performance relating to safety, fuel economy, or other areas. On the other hand, regulations are generally procedural documents requiring, for example, the provision of information to the Agency or to consumers, establishing rules for Agency action, or providing additional information as to the applicability of standards.

49 CFR 571 STANDARD	DESCRIPTION	49 CFR 571 STANDARD	DESCRIPTION
101	Controls and Displays	114	Theft Protection
102	Transmission Shift Lever Sequence, Starter Interlock, and Transmission Braking Effect	115	Vehicle Identification Number
103	Windshield Defrosting and Defogging Systems	116	Motor Vehicle Brake Fluids
104	Windshield Wiping and Washing Systems	117	Retreaded Pneumatic Tires (Passenger Cars)
105	Hydraulic Brake Systems	118	Power-Operated Window Systems
106	Brake Hoses	119	New Pneumatic Tires (Other than Passenger Cars)
107	Reflecting Surfaces	120	Tire Selection and Rims (Other than Passenger Cars)
108	Lamps, Reflective Devices, and Associated Equipment	121	Air Brake Systems
109	New Pneumatic Tires (Passenger Cars)	122	Motorcycle Brake Systems
110	Tire Selection and Rims (Passenger Cars)	123	Motorcycle Controls and Displays
111	Rearview Mirrors	124	Accelerator Control Systems
112	Headlamp Concealment Devices	125	Warning Devices
113	Hood Latch Systems	126	Truck-Camper Loading

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TABLE 3

LIST OF FEDERAL MOTOR VEHICLE SAFETY AND FUEL ECONOMY STANDARDS AND REGULATIONS, EFFECTIVE IN CALENDAR YEAR 1982 (Continued)

49 CFR 571 STANDARD	DESCRIPTION	49 CFR 571 STANDARD	DESCRIPTION
201	Occupant Protection in Interior Impact	214	Side Door Strength
202	Head Restraints	215	(RESERVED)
203	Impact Protection for the Driver from the Steering Control System	216	Roof Crush Resistance
204	Steering Control Rearward Displacement	217	Bus Window Retention Release
205	Glazing Materials	218	Motorcycle Helmets
206	Door Locks and Door Retention Components	219	Windshield Zone Intrusion
207	Seating Systems	220	School Bus Rollover Protection
208	Occupant Crash Protection	221	School Bus Body Joint Strength
209	Seatbelt Assemblies	222	School Bus Passenger Seating & Crash Protection
210	Seatbelt Assembly Anchorages	301	Fuel System Integrity
211	Wheel Nuts, Wheel Discs, and Hub Caps	302	Flammability of Interior Materials
212	Windshield Mounting		
213	Child Restraint Systems		

In addition to the above motor vehicle safety standards, the following regulations of a procedural or informational nature were applicable in calendar year 1982. These regulations govern the actions of the Agency, and the informational and procedural requirements that must be met by manufacturers of motor vehicles for sale in the United States.

TABLE 3

LIST OF FEDERAL MOTOR VEHICLE SAFETY AND FUEL ECONOMY STANDARDS AND REGULATIONS, EFFECTIVE IN CALENDAR YEAR 1982 (Continued)

PART	DESCRIPTION
19 CFR 12.80	Import Regulations - specifies that all imported motor vehicles, new or used, manufactured on or after January 1, 1968, must conform to applicable federal motor vehicle safety standards in effect on their date of manufacture.
49 CFR 501	Organization and Delegation of Power and Duties - describes the organization of the National Highway Traffic Safety Administration (NHTSA).
49 CFR 510	Information Gathering Powers - governs the use of the information gathering powers of NHTSA.
49 CFR 511	Adjudicative Procedures - establishes rules of practice and procedure for adjudicative proceedings.
49 CFR 512	Confidential Business Information - establishes the procedure by which the NHTSA will consider claims that information submitted to the NHTSA is confidential business information.
49 CFR 520	Procedures for Considering Environmental Impacts - governs the Agency's consideration of all environmental aspects of proposed actions.
49 CFR 523	Vehicle Classification - establishes categories of vehicles subject to fuel economy standards.
49 CFR 525	Exemptions from Average Fuel Economy Standards - provide content and format requirements for low-volume manufacturers of passenger automobiles seeking exemptions.

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TABLE 3

LIST OF FEDERAL MOTOR VEHICLE SAFETY AND FUEL ECONOMY STANDARDS AND REGULATIONS, EFFECTIVE IN CALENDAR YEAR 1982 (Continued)

Part	Description
49 CFR 527	Reduction of Passenger Automobile Average Fuel Economy Standards - establishes procedures for submission and disposition of petitions filed by manufacturers of passenger automobiles to obtain reduction of the applicable average fuel economy standard for model year 1978, 1979, or 1980.
49 CFR 529	Manufacturers of Multistage Automobiles - determines, in cases where more than one company is the manufacturer of an automobile, which company is to be treated as the manufacturer for purposes of compliance with fuel economy standards.
49 CFR 531	Passenger Automobile Average Fuel Economy Standards - establishes fuel economy standards for passenger automobiles.
49 CFR 533	Light Truck Fuel Economy Standards - establishes fuel economy standards for light trucks up to and including 8,500 lbs. gross vehicle weight rating.
49 CFR 535	Three (3) Year Carryforward and Carryback of Credits for Light Trucks - establishes regulations governing 3-year carryforward and carryback of credits for manufacturers of light trucks subject to fuel economy standards.
49 CFR 551	Procedural Rules - contains rules of procedure generally applicable to the transaction of official business.
49 CFR 552	Petitions for Rulemaking, Defect, and Noncompliance Orders - to identify and respond to petitions for rulemaking or defect or noncompliance determination and to inform the public of the procedures following response to petitions.
49 CFR 553	Rulemaking Procedures - prescribes rulemaking procedures that apply to the issuance, amendment, and revocation of rules.

TABLE 3

LIST OF FEDERAL MOTOR VEHICLE SAFETY AND FUEL ECONOMY STANDARDS AND REGULATIONS, EFFECTIVE IN CALENDAR YEAR 1982 (Continued)

PART	DESCRIPTION
49 CFR 554	Standards Enforcement and Defect Investigation - establishes procedures for enforcing federal motor vehicle safety standards and associated regulations, investigating possible safety-related defects, and making noncompliance and defect determinations.
49 CFR 555	Temporary Exemption From Motor Vehicle Safety Standards - establishes requirements for the temporary exemption of certain motor vehicles from compliance with one or more federal motor vehicle safety standards.
49 CFR 556	Exemption for Inconsequential Defect or Noncompliance - sets procedures for exempting manufacturers of motor vehicles and replacement equipment from the Act's notice and remedy requirements when a defect or noncompliance is determined to be inconsequential as it relates to motor vehicle safety.
49 CFR 557	Petitions for Hearings on Notification and Remedy of Defects - establishes procedures for holding hearings on petitions filed concerning whether a manufacturer has met his colligation of a safety-related defect or failure to comply with a federal motor vehicle safety standard or to remedy such failure.
49 CFR 566	Manufacturer ID - requires manufacturers of motor vehicles and of motor vehicle equipment for a motor vehicle to which safety standard applies to submit identification, information, and description of the items produced.
49 CFR 567	Certification - specifies content, location, and requirements for label or tag to be affixed to motor vehicles indicating which standards are applicable to the vehicle.
49 CFR 568	Vehicles Manufactured in Two or More Stages - prescribes method by which manufacturers of vehicles manufactured in two or more stages shall ensure conformity of vehicles with the Federal standards and regulations.

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TABLE 3

LIST OF FEDERAL MOTOR VEHICLE SAFETY AND FUEL ECONOMY STANDARDS AND REGULATIONS, EFFECTIVE IN CALENDAR YEAR 1982 (Continued)

PART	DESCRIPTION
49 CFR 569	Regrooved Tires - conditions under which regrooved and regroovable tires may be sold, offered for sale, introduced for sale, or delivered for introduction into interstate commerce.
49 CFR 570	Vehicle in Use Inspection Standards - establishes criteria for the inspection of motor vehicles by state inspection systems.
49 CFR 572	Anthropomorphic Test Dummies - describes dummies that are to be used for compliance testing.
49 CFR 573	Defect and Noncompliance Reports - specifies requirements for manufacturers to maintain lists of purchasers and owners notified of defective and noncomplying motor vehicles and equipment.
49 CFR 574	Tire Identification and Recordkeeping - establishes recordkeeping requirements for brand-name owners.
49 CFR 575	Consumer Information Regulations - establishes required information to be provided to first purchasers.
49 CFR 576	Record Retention - establishes requirements for retention by motor vehicle manufacturers of complaints, reports, and other records concerning malfunctions that may be related to safety.
49 CFR 577	Defect and Noncompliance Notification - sets forth requirements for notification to owners of motor vehicles and/or equipment about possible defect which relates to safety or noncompliance with standards.
49 CFR 579	Defect and Noncompliance Responsibility - sets forth responsibilities of manufacturers for safety-related defects and noncompliance with safety standards.

TABLE 3

LIST OF FEDERAL MOTOR VEHICLE SAFETY AND FUEL ECONOMY STANDARDS AND REGULATIONS, EFFECTIVE IN CALENDAR YEAR 1982 (Continued)

PART	DESCRIPTION
49 CFR 580	Odometer Disclosure Requirements - prescribes rules requiring the transferor of motor vehicle to make written disclosure to the transferee concerning the odometer mileage and its accuracy.
49 CFR 581	Bumper Standard - establishes requirements for impact resistance of vehicles in low-speed front and rear collisions.
49 CFR 582	Insurance Cost Information Regulation - requires automobile dealers to furnish information reflecting differences in insurance costs for different makes and models of passenger motor vehicles.
49 CFR 590	Motor Vehicle Emission Inspections - specifies standards and procedures for motor vehicle emission inspections by State or state-supervised diagnostic inspection demonstration projects.

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FMVSS No. 205, "Glazing Materials." On July 29, 1982, a Notice of Proposed Rulemaking was issued in response to petitions by the General Electric Company and Rohm and Haas to amend Standard No. 205. The amendment would allow the use of bullet-resistant shields in motor vehicles and would reference the latest edition of the American National Standard Code (Z-26) rather than the 1967 edition currently incorporated in the standard.

FMVSS No. 209, "Seat Belt Assemblies." On April 9, 1980, NHTSA received a petition requesting incorporation of the most recent version of one referenced American Standard Test Materials (ASTM) specification, citing the difficulty of obtaining the current specification. The Agency agreed and on July 22, 1982, issued a Notice of Proposed Rulemaking proposing to update all referenced ASTM and American Association of Textile Chemists and Colorists specifications.

FMVSS No. 222, "School Bus Seating and Crash Protection." A Notice of Proposed Rulemaking was issued on February 25, 1982, in response to complaints that schoolbus seats were uncomfortable and cramped, mainly because Standard No. 222 prescribed a maximum of 21 inches between seats. Subsequent research indicated that the seat spacing could be increased up to 24 inches without compromising safety.

Improved Use of Research Resources

NHTSA is improving the effective use of its scarce research resources by seeking not to duplicate work already being done in the private sector. For example, NHTSA and certain technical committees of the Society of Automotive Engineers are sharing information and test results and conducting joint data reviews to improve automotive safety technology. These programs have resulted in the development of technical recommendations on: advanced instrumentation procedures and data processing methods; updating of the norms for human tolerance to impact; improvements in human mechanical and mathematical simulations; and equipment and procedures for use in motor vehicle test programs.

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AVOIDING ACCIDENTS

The complex relationship between a motor vehicle and its driver is the subject of considerable interest at NHTSA. Factors influencing this relationship include the driver's physical abilities and driving experience, the nature of the driving, the responsiveness of the motor vehicle and its components to the driver's demands, and environmental considerations, such as road condition and weather.

Driver improvement programs, strict law enforcement, and better highway engineering have been the traditional and most publicized approaches to motor vehicle accident prevention. But improvements in vehicle components, such as brakes, steering assemblies, tires, wheels, mirrors, and lights also contribute to the safe and efficient operation of a motor vehicle.

Visibility and Vehicle Conspicuity

Vision accounts for more than 90 percent of the information a driver receives. NHTSA's research to improve visibility is concerned with the need to reduce blind spots caused by inadequate rearview mirror systems and vehicle obtructions. It also attempts to minimize the impairment of the driver's field of view due to inclement weather and the loss of nighttime visibility because of heavily tinted windows.

Driving on high-speed divided highways and freeways could be made safer with better rear vision than is presently available. Operators of today's automobiles, trucks, and motorcycles may find inadequate rear visibility because of the inherent field of view limitation of conventional, flat rearview mirrors.

For example, NHTSA-sponsored research has demonstrated that many trucks and vans have serious blind spots which prevent the driver from seeing other vehicles that are approaching from the rear and the side.

The Agency has been field testing different mirror combinations to determine which reduces the blind spot problem most effectively without imposing other visibility problems. The testing involves a total of 6,000 light-duty trucks; 2,000 are control vehicles with conventional plane mirrors specified by Standard No. 111, "Rearview Mirrors"; 2,000 are equipped with plane mirrors on the driver's side and convex mirrors on the passenger side; and 2,000 are equipped with both plane and convex mirrors on both sides.

On September 2, 1982, a final rule was issued amending

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Standard No. 111 to allow the use of a convex mirror as an alternative to a plane mirror on the passenger side of an automobile, light truck, or multipurpose passenger vehicle. The additional convex mirror will improve safety by increasing the field of view and thus help to eliminate the blind spots on the right side of the vehicle. Since the new convex mirror increases the field of view, it will provide the driver the capability of being able to see vehicles that are on the right side and allow the driver to know when to change lanes and pass other vehicles without causing accidents.

Vehicle conspicuity research is concerned with reducing the likelihood of vehicle-to-vehicle crashes by improving a driver's ability to recognize the presence of another vehicle, and to judge such things as distance between vehicles, closing speed, and the probable courses of action of other vehicles.

A research project under preliminary design in 1982 involves equipping trucks with retro-reflective materials that will help make these vehicles more conspicuous, especially at night. The research is expected to determine if equipping vehicles with improved conspicuity devices will reduce rear and side collisions.

Lighting

A number of differences exists between U.S. and the Economic Commission for Europe (ECE) lighting regulations. Some of the inconsistencies can be eliminated without negative safety impact, and the Agency has worked closely with both the ECE and the Society of Automotive Engineers to identify areas for harmonization.

Lighting regulations under consideration for harmonization include:

- Rear Yellow Turn Signal Photometrics: At present, U.S. FMVSS No. 108 specifies a minimum of 200 candlepower (cd) and a maximum of 750 cd for rear yellow signal lamps. European regulations specify a minimum of 50 cd and maximum of 200 cd. At a recent working group meeting, it was proposed that the U.S. lower its minimum to 130 cd and that the European raise their maximum to 350 cd. Such a move would benefit both domestic and foreign manufacturers by providing a wider range of compatibility in designing lamps.

- License Plate Lamp: Present test procedures to measure illumination of the license plate are not compatible. NHTSA proposes to bring U.S. procedures more in line with European test procedures.

- Test Grid (stop, tail, turn, parking lamps): U.S. and

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European procedures are not compatible, and NHTSA is evaluating possible rule changes.

- Headlight Height: U.S. standards require a minimum height of 24 inches from road surface to the center of the lamp. European standards require a minimum of 19.7 inches for low-beam lamps from the ground to the edge of the illuminating surface. NHTSA is considering the safety implications of lowering headlamp height.

Vehicle Identification Number

FMVSS No. 115, "Vehicle Identification Number," requires each motor vehicle to have a unique 17-digit vehicle identification number (VIN) identifying the manufacturer, make, type, size, place of manufacture, and individual sequential number of manufacture. The VIN is used to identify vehicles subject to safety defect recall campaigns and helps in the recovery of stolen vehicles.

On August 30, 1982, NHTSA issued a Notice of Proposed Rulemaking seeking comments on the withdrawal of certain portions of the standard and issuing an administrative regulation in their place. This action was proposed to remove the threat of a costly recall as a result of certain inconsequential VIN errors that violate the standard. The notice proposed to classify the administrative information contained within the VIN as not safety related, enabling it to be governed by a regulation rather than a safety standard.

Power Windows

A Notice of Proposed Rulemaking was issued April 1, 1982, to permit the operation of power windows and partitions during the interval between when the ignition key is shut off and a vehicle door is opened. At present, power windows cannot be operated once the ignition is turned off.

The proposal would increase driver convenience by permitting the power windows to operate in situations when the engine is not running but the driver needs to lower a window, such as giving instructions to a service station attendant. Once the door is opened, the windows would become inoperable. The change would not adversely affect safety because, except in rare circumstances, the driver would still be in the vehicle and able to supervise the operation of the windows.

Speedometers and Odometers

FMVSS No. 127, "Speedometers and Odometers," was revoked on March 25, 1982. That standard required that speedometers be calibrated in both miles per hour and kilometers per hour, that they would display speeds of no more than 85 mph or 140 km/h, and that the 55 mph indication be presented and highlighted. It also required that odometers be tamper-resistant, indicate whether or not a car had been driven more than 100,000 miles, and, if a replacement, that the numerals be colored red.

Standard No. 127 was revoked because it produced no direct safety benefit. Furthermore, the Agency was concerned that the actual benefits of the anti-tampering requirements (i.e., the inhibition of odometer tampering as a result of the relatively slight but expensive changes that would be required by the rule) would be minimal.

In lieu of regulatory approach, the Agency is considering other means of preventing odometer fraud, primarily through working with States on vigorous enforcement actions.

Multipiece Truck Rims

On February 22, 1982, NHTSA terminated rulemaking on multipiece truck rims.

Multipiece rims are used on light to heavy trucks and buses to simplify the mounting of the large, heavy, rigid tires used on these vehicles. There have been a number of serious injuries resulting from explosive separations of some designs of these rims, most of which occur when rims and tires are being serviced. However, the injuries involve particular rims that are no longer in production. Therefore, the rulemaking would not have prevented injuries or fatalities.

The potential hazards of these rims mainly involve employees of service facilities that are subject to Occupational Safety and Health Administration (OSHA) standards; OSHA has issued a standard on multipiece rims. NHTSA will continue to monitor the effectiveness of the OSHA standard.

Controls and Displays

On November 4, 1982, a Notice of Proposed Rulemaking was issued to update FMVSS No. 101, "Controls and Displays," which requires the use of symbols to identify several controls and displays. By adding or modifying several symbols, the standard would be brought into harmony with that of the

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International Standards Organization (ISO). The ISO is composed of national experts who work to achieve uniformity and harmony of symbol identification worldwide for faster recognition of information at lower cost. Conforming amendments would also be made in Standard No. 105, "Hydraulic Brake Systems." The notice also proposed minor interpretive amendments concerning the turn signal control symbol and the words that may be used to indicate brake fluid levels.

Brakes

Research studies of the braking performance of heavy trucks equipped with air and hydraulic brake systems continued in 1982.

Compatability testing of trucks and trailers was conducted at NHTSA's Vehicle Research and Test Center, and a research paper stressing the need for proper brake adjustment was prepared and presented at the Society of Automotive Engineers' Annual Truck Meeting.

Since 1980, NHTSA has measured the economic and safety benefits of retarder use in heavy trucks. Retarders are devices which augment the truck's basic brake system, especially on a downgrade. Use of these devices is of increasing importance since the new fuel-efficient trucks have less inherent natural retardation, effectively making all grades an estimated 1 percent steeper. Work continued in 1982 on developing a standarized method of rating and reporting retarder performance so that users could pick the best device for their needs. Work also began on developing a manual for drivers to help them get the maximum benefit from a retarder while avoiding its use under undesirable conditions.

Research into advanced motorcycle brake systems also continued in 1982. A variable proportioned brake system, a prototype all-mechanical anti-lock brake system, and advanced wet friction materials were studied and found to be promising means of improving motorcycle braking performance and stability.

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FUEL ECONOMY

As a result of the oil embargo of 1973, substantial increases in the price of imported petroleum, and a recognition of the Nation's vulnerability to foreign oil supplies and pricing, Congress in December 1975, passed the Energy Policy and Conservation Act. The law added Title V to the Motor Vehicle Information and Cost Savings Act, requiring the Secretary of Transportation to set average fuel economy standards for passenger cars and light trucks. As a result of the enactment of Title V, standards have been set for both categories of vehicles through model year 1985.

In 1980, Congress modified Title V by passing the Automobile Fuel Efficiency Act of 1980 (1980 Act). During 1982, American Motors was granted a limited exemption from fuel economy requirements, and several other manufacturers with very low annual production volumes were granted alternate standards under provisions of the 1980 Act. In a separate action, fuel economy reporting requirements were administratively reduced by deletion of certain requirements which had become unnecessary. Also, work began on model years 1986 and 1987 light-truck fuel economy standards.

Title V of the Motor Vehicle Information and Cost Savings Act stipulates that passenger cars having less than 75 percent of the cost to the manufacturer attributable to value added in the U.S. or Canada are considered to be of foreign manufacture. These cars cannot be combined with cars with at least 75 percent value added in the U.S. or Canada (domestically manufactured) for the purpose of complying with fuel economy regulations. To remove this disincentive to domestic productions and increase U.S. employment, the Automobile Fuel Efficiency Act of 1980 permits any manufacturer to apply for an exemption from the domestic content requirement, if it plans to phase in domestic production over a 4-year period, by gradually increasing its domestic content to at least 75 percent. In 1982, American Motors requested, and received, permission from NHTSA to include up to 150,000 of its new Alliance models in its domestic fuel economy fleet during model years 1983-85. By model year 1986, the Alliances must have at least 75 percent U.S. or Canadian value added if they are to be included in AMC's domestic fleet.

The 1980 Act also authorized low-volume manufacturers* to apply to the Secretary of Transportation for alternative average fuel economy standards for two or more model years after model year 1980 and before model year 1986. Aston

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* Manufacturing fewer than 10,000 passenger automobiles whether or not in the U.S.

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Martin, Avanti, Excalibur, and Rolls Royce each were granted a single separate standard for each model year 1981-85. Checker was given alternative standards for 1981 and 1982, its last year of production.

Consistent with the Act's objective to reduce the burden on manufacturers, NHTSA reduced fuel economy reporting requirements. Detailed technical and sales data are now required to be submitted only once rather than twice a year. Data on technology and sales change from one model year to another and on marketing measures used to increase fuel economy are no longer required.

Light Truck Fuel Economy

In December 1980, NHTSA published final average fuel economy standards for light trucks (pickups, vans, utility vehicles) for model years 1983-85 that are expected to save 10 billion gallons of fuel over the lifetime of the vehicles.

Manufacturers were given the option to comply with separate two-wheel and four-wheel drive standards, or a combined standard. In July 1982, corresponding changes were made to the model year 1982 standard based on a harmonic weighing (75 percent/25 percent sales mix) of the 18.0 mpg two-wheel drive standard and the 16.0 mpg four-wheel drive standard that had been set in March 1980. The composite standard gives manufactures the flexibility of making greater improvements to one class of light trucks or the other.

Model Year	Composite	Two-Wheel Drive	Four-Wheel Drive
1983	19.0 mpg	19.5 mpg	17.5 mpg
1984	20.0 mpg	20.3 mpg	18.5 mpg
1985	21.0 mpg	21.6 mpg	19.0 mpg

Also during 1982, NHTSA began work on a rulemaking process to develop fuel economy standards for model years 1986-87 light trucks. Five domestic and four foreign manufacturers of light trucks were requested to provide detailed data on their projected production and financial plans for those years.

Fuel Economy Enforcement

Fuel economy enforcement in 1982 involved monitoring the 1982 corporate average fuel economy (CAFE) performance by the manufacturers' 41 fleets of passenger automobiles and light trucks against the applicable fuel economy standards; reviewing the current model year projected CAFE; and enforcing the requirements for new car dealers to display and distribute gas mileage guide booklets.

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All automobile manufacturers were in compliance with the standards in effect for the 1982 model year:

Fleet Designation	1982 CAFE Standards
Passenger automobiles	24.0 mpg
Two-wheel drive light trucks	18.0 mpg
Four-wheel drive light trucks	16.0 mpg
Combined four-wheel and two-wheel	17.5 mpg

One manufacturer, Jaguar Rover Triumph, Inc., reported an 18.8 mpg CAFE for its passenger automobiles for the model year. To avoid a noncompliance with the standard, credits earned in model year 1979 were used to raise the average mpg to the necessary level.

During the year, 113 new car dealer inspections were conducted by NHTSA to check the display and distribution of the gas mileage guide booklets. Sixty dealerships or 53 percent were found to be in compliance. Warning letters were sent to the 47 percent that were not.

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ENFORCEMENT

NHTSA is responsible for enforcing federal laws, standards, and regulations on motor vehicle safety. During 1982, motor vehicle manufacturers recalled 1,914,112 vehicles because of safety-related defects.

In addition, the Agency enforces the odometer requirements of the Motor Vehicle and Cost Savings Act which include prohibitions against tampering with motor vehicle odometers, as well as disclosure requirements for vehicle sellers.

NHTSA's safety enforcement activities are divided into two operational areas: defects investigation and vehicle safety standards compliance. Defect investigations cover domestic and foreign motor vehicles, tires, and equipment, and the safety-related defect notification requirements of the National Traffic and Motor Vehicle Safety Act of 1966.

The motoring public is the primary source of information for these investigations; NHTSA receives approximately 2,500 reports a month concerning problems with motor vehicles, tires, and equipment.

Safety Defects

When a manufacturer obtains information that a safety defect exists, or that a group of vehicles or items of equipment do not comply with a federal motor vehicle safety standard, it is required by law to notify the vehicle owner, dealers, distributors, and NHTSA. The manufacturer also is required to remedy the problem free of charge to vehicle owners. This applies to vehicles and equipment that are 8 years old or less and to tires that are 3 years old or less.

Since 1966, 99.5 million vehicles have been recalled by manufacturers to correct safety defects. NHTSA influenced the recall of 50 million of these vehicles.

The Investigative Process

Most safety recalls are initiated by manufacturers entirely on their own and in response to applicable laws and regulations. Even if NHTSA has started the process of identifying a safety-related defect, a manufacturer can agree to a voluntary recall at any time. In fact, most recalls are voluntary, even when NHTSA is involved, and very few have been "ordered" by NHTSA. Voluntary recalls are preferable to ordered recalls because they get defective cars off the road much sooner.

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The identification of a safety-related defect by NHTSA is a four-step process. First, information is gathered, primarily from consumer/owner letters and from consumer calls to the NHTSA Auto Safety Hotline. Each letter is reviewed, and the safety defect information is then computerized for easy analysis and quick retrieval. When a trend is identified, the next step in the process is triggered, beginning either an inquiry or an engineering analysis.

An inquiry frequently precedes an engineering analysis. During the inquiry, the manufacturer is contacted and asked to provide information relating to the problem and this information is used to decide whether an engineering analysis should be initiated.

An engineering analysis is conducted to identify engineering defects which have safety implications. As part of this analysis, the manufacturer is contacted and requested to supply production information, technical data, and complaints received. During this analysis, complaint data are further reviewed, and engineering studies and tests may be conducted.

If a potential safety-related defect is identified through an engineering analysis, and there is no voluntary recall, the next step is to open a formal investigation to confirm the consequences and safety implications of the defect.

With the opening of a defect investigation, the manufacturer is again notified, and a press release is issued asking that the public provide the Agency with information pertaining to the investigation.

During the investigation, all previously collected information is reviewed, confirmed, and supplemented, and interviews may be conducted with drivers or accident victims who have experienced the problem. Further studies and vehicle testing may also be conducted. During this phase, some manufacturers agree to a recall and the investigation is closed. If the investigation supports a defect finding, and the manufacturer does not recall voluntarily, an initial determination is made that a safety-related defect exists and that a recall is warranted.

After an initial determination is made, the manufacturer is notified and a public meeting is scheduled to offer the manufacturer and the public an opportunity to present views and arguments concerning the alleged safety defect. Even at this stage, the manufacturer may agree to recall.

Following the public meeting and a review of the material presented, the Administrator makes a decision on the matter, ordering a recall if a final determination is made that a safety defect exists.

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1982 Recalls

There were 135 safety recall campaigns in 1982 involving 1.91 million motor vehicles. Twenty of the recall campaigns involving 660,000 vehicles were influenced by NHTSA. In addition to these recalls, 916,000 units of motor vehicle equipment and 131,000 tires were recalled.

Some of the major safety recalls that occurred in 1982 were:

1982 General Motors Mid-sized Cars. Approximately 520,000 cars were recalled to replace hose clamps on the fuel tank filler neck pipe. Failure of these clamps could cause fuel leakage, with the possibility of a fire resulting in injuries to persons in or near the vehicle.

1978-82 Audi 5000's. NHTSA action influenced the recall of 92,000 Audi 5000 cars because the floor mat on the driver's side could slide under the accelerator pedal and cause the throttle to remain partially open during deceleration.

1979-81 Datsun 510's. NHTSA action influenced the recall of 118,000 Datsun 510 cars for a safety belt retractor defect that made the safety belt inoperative.

1982 Ford Motor Company. Ford voluntarily recalled 113,000 Ford Escort and EXP and Mercury Lynx and LN-7 cars for a problem with the air conditioner/heater blower unit circuit components that could result in overheating of the unit and possible fire.

1981-82 Subarus. Subaru recalled 94,000 cars to install protective covers on the main wiring harness and the rear battery hold down rod. The main wiring harness can chafe aginst the threads of the rear battery hold down rod which could lead to an electrical short and possible engine compartment fire.

Inquiries, Engineering Analyses and Formal Investigations

In 1982, there were 97 inquiries and engineering analyses opened, and 72 were carried over from previous years. Seventy-one inquiries and engineering analyses were closed without action because it did not appear that a potential safety-related defect was present. There were also 15 recalls that were influenced by inquiries and engineering analyses some of which were in progress prior to 1982.

Seven formal defect investigations were opened, one of which resulted in the recall of certain Datsun vehicles for a brake light wiring problem. The other six investigations were still active at the end of the year.

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Recall Audits

Recall campaign audits are conducted to determine the effectiveness of recall campaigns and to evaluate the manufacturer's remedy.

Audits demonstrate to vehicle owners, equipment manufacturers, dealers, and distributors that NHTSA is concerned that the recall work is properly completed and accomplished within a reasonable period of time. The audit involves direct communication between NHTSA and vehicle owners, so owners can express satisfaction or dissatisfaction with the handling of the recall and furnish information to help improve future campaigns.

Audits may be conducted by mail and/or through visits by the NHTSA staff. A mail audit requests that the vehicle owner provide specific information on the recall experience. Typical questions concern the timeliness of the repair and whether the repair was adequate. The field audits, conducted by both NHTSA headquarters and regional office staffs, include contact with owners and visits to dealerships to examine records and to talk with service and parts employees.

In 1982, 16 audits were opened and 5 audits begun in 1981 were completed. In addition to asking questions about a specific recall, owners were asked to comment on any other problems they had experienced with the vehicle. Copies of the comments received in response to the recall campaign mail audits were sent to the manufacturer, and follow-up checks with the manufacturers found that the complaints mentioned in the comments were resolved expeditiously.

Vehicle Safety Compliance

Vehicle safety compliance involves the testing, inspection, and investigation of vehicles and equipment to assure that they comply with the National Traffic and Motor Vehicle Safety Act of 1966, and federal motor vehicle safety standards and associated regulations, including the motor vehicle importation issued jointly by the Secretaries of Transportation and Treasury.

Monitoring compliance is a serious enforcement function and considerable emphasis is placed on making the process work efficiently. The motoring public is the ultimate beneficiary when safety problems are remedied quickly.

Compliance Testing

Each year, NHTSA tests representative samples of new

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vehicles and automotive equipment for compliance with federal motor vehicle safety standards and regulations. This sampling provides a measure of assurance that manufacturers are providing consumers with products that meet prescribed safety requirements.

Test vehicles are selected by NHTSA with the aid of a computer which considers previous Agency test results, accident data, owner complaints, and engineering evaluation of design features across all model lines. Based on these and other related factors, the computer then identifies recommended vehicle test priorities. NHTSA then makes a final decision on which cars will be tested.

The compliance testing program is sensitive to the many product changes taking place in the automotive industry, such as downsizing, increasing use of front wheel drive, and more electronics. For example, in 1982 special attention was paid to monitoring the vehicle downsizing activities of manufacturers because NHTSA's Fatal Accident Reporting System indicated that compact passenger cars accounted for the largest number of occupant fatalities in the previous year.

The existence of a compliance test program with public availability of the test results is a strong inducement to manufacturers to improve their own safety monitoring programs. This is evidenced by the improvements in the motor vehicle industry quality control programs, and the availability and quality of their certification data that was examined when problem areas were investigated.

Compliance testing also continues to provide hard data for evaluating existing standards, modifications to standards, proposals for new standards, and processing of the many petitions received by the Agency.

A particularly watchful eye is kept on new models as they are introduced into the marketplace. New designs and technology may lend themselves to the potential for compliance problems. This is particularly so during model introduction and the early production years.

1982 Compliance Testing

In 1982, 126 vehicles were selected and subjected to 285 tests for compliance with federal motor vehicle safety standards. The test program for motor vehicle equipment involved 4,828 items such as tires, brake hoses, lamps, safety belts, and child seating systems.

The 1982 test program resulted in 15 recalls involving 193,031 vehicles and 63,133 pieces of equipment. The major motor vehicle recalls included 173,000 model year 1982

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Chevrolet Camaros and Pontiac Firebirds which failed the FMVSS No. 210 tests covering safety belt anchorages, and 18,000 Nissan Stanzas which failed to meet the braking requirments of FMVSS No. 105. The equipment recalled included 61,000 lamps which failed to meet the lighting requirements of FMVSS No. 108. In addition, four manufacturers were assessed civil penalties totalling $20,150.

Uniform Tire Quality Grading

NHTSA's compliance testing under the Uniform Tire Quality Grading Regulation was terminated in May 1982.

A review of data obtained from the compliance testing programs and data obtained from the manufacturer's testing programs continued to reveal large unexplained variations in the measurement of tire treadwear.

Due to these variations and lack of repeatability, tire grade assignments could not be confirmed for compliance purposes. This was considered sufficient cause to suspend the Agency's tire quality grading compliance test program.

Odometer Tampering

Odometer tampering is a major problem, particularly involving the 4 million late model, high mileage, fleet and leased vehicles entering the used car market each year. Evidence has shown that a professional odometer "spinner" can change the odometer reading of a vehicle in less than 3 minutes. NHTSA estimates that 70 percent of these vehicles have odometers that are turned back which creates approximately $2 billion in consumer fraud each year.

The continued high demand in 1982 for clean, late model, low-mileage used cars exacerbated the problem of odometer fraud. NHTSA continued its odometer enforcement program, confirming odometer fraud in 98 investigations conducted in 25 States. During these investigations, it was determined that the mileage on at least 720 vehicles had been rolled back. Sixteen cases involving large-scale odometer tampering were turned over to the U.S. Department of Justice for criminal prosecution, and civil penalties were assessed against 37 dealers with lower numbers of violations. In addition, 27 cases were referred to state enforcement agencies, and the results of 18 investigations were given to consumers so that they could take private civil actions to recover damages.

In September 1982, a study of odometer tampering involving vehicles sold through the 14 Pennsylvania auto auctions was completed under contract by the Pennsylvania

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Office of the Attorney General. This study disclosed that nearly 20 percent of all vehicles sold through the autions more than once, which had odometer readings recorded at both transactions, were rolled back. The study also disclosed that 54 percent of all vehicle sales at the auctions were made by dealers whose businesses were located outside of the State of Pennsylvania, confirming the interstate nature of the wholesale auto industry.

Imported Motor Vehicles

As a general rule, motor vehicles manufactured on or after January 1, 1968, must comply with all applicable federal motor vehicle safety standards before they can be imported into the United States, and the U.S. Customs Service requires importers to file a declaration with each entry. Vehicles that are certified by their manufacturers as complying clear Customs promptly.

Vehicles that do not conform can be imported, but a bond is required to assure that the vehicle will be brought into conformity within a reasonable length of time, normally 120 days.

Upon receipt of the Customs declaration by NHTSA, the importer is advised of the standards and regulations applicable to the vehicle being imported. The importer is also advised that it is difficult and costly to achieve compliance with certain critical standards, and failure to do so renders the vehicle subject to export or destruction.

NHTSA handles approximately 300 inquiries each week from potential importers. Information that explains the difficulties involved in importing noncomplying vehicles is widely distributed to help potential importers avoid costly and time-consuming problems. The U.S. Department of State is provided with brochures for distribution to embassies, consulates, and the passport office. Similarly, the Department of Defense distributes these brochures to overseas military installations.

The relaxation of the exhaust emission requirements of the Environmental Protection Agency coupled with the impact from the improved exchange rate of the U.S. dollar, increased the number of nonconforming vehicles imported into the United States in 1982; a total of 5,530 vehicles imported compared to about 2,800 the year before.

Litigation

Department of Transportation v. State Farm. The U.S. Supreme

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Court granted Government's petition for certiorari to hear the case involving the NHTSA's 1981 rescission of the passive restraint requirements of Federal Motor Vehicle Safety Standard No. 208. Before the rescission, the standard required installation of automatic seat belts or air bags in new cars beginning September 1982. The NHTSA Administrator decided to rescind this requirement because evidence showed a possibility that the automatic protection requirements of the standard might fail to increase usage substantially and could provoke negative public reactions. During 1982, the Court of Appeals for the District of Columbia Circuit reviewed the rescission in an action brought by insurance companies. On June 1, 1982, the Court of Appeals issued an opinion reversing the rescission order, holding that such an action revoking a regulation must be supported by evidence proving that the standard would not be effective. On August 4, 1982, the Court of Appeals entered a further order reinstating the passive restraint requirement and making September 1, 1983 the new effective date. Because of the importance of the administrative law questions presented, the Supreme Court decided to review the case. In light of the Supreme Court's decision, the Court of Appeals withdrew its mandate.

Center for Auto Safety v. Peck; State Farm v. DOT. These two consolidated cases were brought before the D.C. Circuit Court of Appeals to review NHTSA's May 1982 amendment of the Bumper Standard. The amendment reduced the test speed requirement of the standard from 5 mph to 2.5 mph based on the Agency's analysis of the cost and benefit factors which concluded that this reduction would best fulfill the statutory mandate to achieve maximum feasible reduction of costs to the public and the consumer. Proceedings in the Court of Appeals were stayed pending the Agency's determination of petitions for reconsideration. These petitions were denied on December 15, 1982, and the litigation went forward.

Center for Auto Safety v. Lewis (Ford transmissions). On August 10, 1982, the Court of Appeals for the D.C. Circuit affirmed the summary judgment order of the District Court in favor of the Agency's negotiated settlement of its defect investigation of Ford automatic transmissions. Consumer groups and owners of Ford automobiles had challenged the Agency's authority to conclude its defect investigation by negotiated settlement. On December 30, 1981, NHTSA ended its investigation when Ford agreed to notify some 20 million owners of the Agency's initial determination that certain Ford automatic transmissions contained a safety-related defect which might cause them to fail to engage or hold in park, and to send a warning label advising owners how to avoid this hazard. In deciding in favor of NHTSA, the Court of Appeals held that the Agency was not required to follow an "all or nothing" course in resolving defect cases.

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Center for Auto Safety v. NHTSA (fuel economy). In this action, the Center for Auto Safety sought judicial review of the Agency's 1981 decision to withdraw an Advance Notice of Proposed Rulemaking concerning possible post-1985 fuel economy in passenger cars and light trucks. Because the Agency decision was not a rule within the meaning of the Cost Savings Act or the Administrative Procedure Act, NHTSA moved to dismiss the action. The Court of Appeals deferred ruling on this motion and received briefs and heard arguments on November 18, 1982.

Noncomplying Headlamp Cases. The Agency pursued three cases in the U.S. District Courts against importers of noncomplying passenger car headlamps. In United States v. B and B Autosport in the Western District of New York, NHTSA began negotiations for a resolution consent judgment to prohibit further importation. In U.S. v. Universal Tire Company, in the District of Maryland, NHTSA pursued an action for a contempt of court citation against an individual who was under an injunction not to import nonsealed beam headlamps when he formed a new corporation to resume this activity. The defendant has moved to modify the existing consent decree to permit importation of non-sealed headlamps which could be certified for motorcycle use. In U.S. v. S.E.V., et al., an action against a French manufacturer of non-sealed beam headlamps and its domestic subsidiary which imports these headlamps into the U.S., the Government has pursued discovery and took under consideration overtures for settlement from the defendants.

Administrative Enforcement

Many administrative enforcement actions under the National Traffic and Motor Vehicle Safety Act are settled by accepting payments in lieu of seeking civil penalties through court actions. Section 109 of the Act authorizes NHTSA to collect penalties of up to $1,000 per violation. In settling these enforcement actions, the Agency considers factors such as the gravity of the violation and the size of the business.

1982 administrative enforcement actions included:

- Nonconformance with requirements for passenger car tires (FMVSS No. 109): Mohawk Tire Co., $10,000.
- Nonconformance with seat belt anchorage requirements (FMVSS No. 210): Van Con Inc., $150.
- Nonconformance with schoolbus seating and crash protection equipment (FMVSS No. 210): Sheller-Globe Corp., $5,000.
- Nonconformance with fuel system integrity requirements (FMVSS No. 301): Renault USA Inc., $5,000.

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CONSUMER ACTIVITIES

Bumpers

Title I of the Motor Vehicle Information and Cost Savings Act requires NHTSA to issue a bumper standard that will provide the maximum feasible reduction of costs to the public and the consumer. Beginning in model year 1979, the bumper standard required that passenger cars remain undamaged, except for the bumper system itself, in 5 mph front and rear barrier and pendulum impacts. In the following year, model year 1980, the standard was made more stringent by limiting the amount of damage sustained by the bumper itself.

NHTSA completed rulemaking in May 1982 on proposed changes to the bumper standard. After a thorough analysis of the costs associated with, and benefits of, 5 mph bumpers, the Agency concluded that the standard did not meet the statutory criterion of providing maximum net savings to consumers. Instead, the Agency found that a standard requiring protection at impacts of 2.5 mph would save consumers an additional $300 million per year. As a result of the Agency's analysis and the statutory criteria, NHTSA was compelled to change the minimun protection capability of bumpers from 5 mph to 2.5 mph. Manufacturers would still be free, though, to produce bumper systems which provided 5 mph, or higher protection.

To aid consumers in distinguishing among bumper systems, NHTSA also announced in May 1982 the initiation of a bumper rating program. The goal of the program is to provide information to consumers on the precise level of protection afforded by bumpers on specific makes and models of cars. Activity on the program in 1982 concentrated on the development of test procedures to provide this information.

The Agency will continue to evaluate the actual benefits and costs of the changes in the bumper standard.

Auto Safety Hotline

The toll-free Auto Safety Hotline, which previously supplied only recall information and received motor vehicle safety defect complaints, was expanded in 1982. The Hotline now also provides consumers with a convenient means of requesting information about fuel economy ratings, crash test results, tire safety and care, child safety seats, drunk driving, bibliographical information identifying magazine articles on specific makes and models of cars, and a listing of available NHTSA publications.

The Hotline logged more than 223,000 calls in 1982, well above the 160,000 calls received in 1981. Most of the

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consumers who dialed the Hotline either asked for recall information or reported safety problems they had experienced with their cars. A large number, however, sought consumer-related information.

The Hotline's normal operating hours are 8:00 a.m. to 4:00 p.m. (Eastern time) Monday through Friday, but calls can be received day or night, 7 days a week. During non-business hours, callers are assisted by an automatic telephone answering service.

The nationwide toll-free number is (800) 424-9393 (for the Washington, D.C. metropolitan area, 426-0123). There is also a toll-free Teletyrm (TTY) number for the hearing impaired, (800) 424-9153, (Washington, D.C. 755-8919). A Spanish-speaking operator is available during normal operating hours.

The Auto Safety Hotline provides consumers with a convenient means to obtain safety-related recall information on motor vehicles, equipment, and tires. A printed copy containing a summary of the recall(s) can also be mailed, or the information can be provided immediately over the telephone. This enables the caller to visit an authorized dealer to determine if any of the recall items pertain to his or her vehicle. In 1982, more than 100,000 calls were received requesting recall information.

The Hotline also provides questionnaires to persons wishing to report vehicle, vehicle equipment, or tire safety problems. When the completed questionnaire is received by the Agency, the data is computerized and used to identify trends of potential, safety-related defects. A copy of each questionnaire and a letter requesting assistance in resolving the consumer's problem is sent to the vehicle manufacturer. (Many owners have reported that they received assistance as a result of these referrals.) In 1982, callers reported more than 25,000 vehicle, vehicle equipment, and tire safety problems.

Although NHTSA's authority is primarily in the area of safety, many consumers report problems related to warranties, service, sales, etc.--problems that must be resolved by manufacturers, State and local governments, or other federal agencies. As a public service, the Hotline operators have reference material on these agencies to direct consumers quickly to the proper organizations.

Uniform Tire Quality Grading

The National Traffic and Motor Vehicle Safety Act directed NHTSA to establish a rating system for new tires. The Uniform Tire Quality Grading System (UTQGS) was designed to help consumers choose safe, economical tires by demonstrating that tires that offer essentially the same level of performance may

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vary greatly in price. Before UTQGS was established in 1979, there was no uniform method of determining tire quality. A "premium" tire from one manufacturer might not be equal in quality and performance to another company's "premium" tire.

Tires are rated in three areas of performance:

Treadwear. Numerical ratings should indicate the relative treadwear performance of each tire. A tire graded 150 should give 50 percent more mileage than one rated 100.

Traction. A, B, and C ratings indicate the tire's ability to stop on wet surfaces. Tires graded "A" should stop on a wet road in a shorter distance than ones graded "B" or "C."

Temperature Resistance. Graded A, B, or C. Hot running tires can result in blowouts or tread separation. An "A" means the tire will run cooler than one rated "B" or "C" and is less likely to fail if driven over long distances at higher speeds.

UTQGS is not a tire safety rating system. A low UTQGS rating does not mean that a tire is unsafe. Independent of this rating system, all tires must meet minimum federal safety standards.

There have been technical problems with the UTQGS, particularly with the treadwear tests, the results of which may vary to such a degree that the standard is not helping consumers and is difficult to enforce in its present form. On July 2, 1982, NHTSA issued a Notice of Proposed Rulemaking to suspend the treadwear grading requirements of UTQGS to avoid dissemination of potentially misleading information on the expected treadlife of passenger car tires. The proposed action would leave unchanged the grading requirements for traction and temperature resistance.

New Car Assessment Program

The experimental New Car Assessment Program evaluates the comparative safety performance of new automobiles under controlled crash conditions. The tests are conducted under the provisions of Title II of the Motor Vehicle Information and Cost Savings Act of 1972.

In the frontal tests, cars are run at 35 mph into a fixed, rigid barrier. Each car carries two instrumented adult dummies in the front seat; both dummies are wearing lap and shoulder safety belts. After the crash, readings are taken from the dummies' head, chest, and thighs. These readings and other measurements are used to estimate the injuries human occupants would have sustained. Other aspects of vehicle

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safety performance are also monitored, including whether the vehicle retains the windshield, prevents intrusion of vehicle parts into the occupant compartment, and maintains the integrity of the fuel system.

The measurements used to assess potential injuries are based on the injury criteria in the 1977 version of Federal Motor Vehicle Safety Standard No. 208, "Occupant Crash Protection," which specifies injury limits in a 30 mph frontal crash for cars equipped with automatic (passive) restraints (i.e., automatic belts or air bags).

The cars are tested at 35 mph to measure relative performance at a test speed 5 mph faster than the prescribed speed for compliance tests.

The intent of the program is to increase consumer awareness of comparative automotive safety performance. It is anticipated that it also will foster competition among manufacturers to produce cars which are safer, more resistant to damage, and less costly to service and repair.

Frontal tests were conducted on 24 cars during 1982 (Table 4). This brings the total to 93 makes and models that have been tested in frontal and frontal oblique (30 degree angular) impacts since the New Car Asessment Program began in 1979.

The results of the 1982 program indicate continued improvements in new vehicle performance. For the first time, the three major Japanese manufacturers have their newest body structure designs performing well within the acceptable head and chest injury levels. General Motors leads the domestic manufacturers by consistently introducing new designs that perform well in these tests. Volvo incorporated a redesigned restraint system in its 242 DL model for 1982, a design change that significantly improved the performance of that vehicle in the frontal test.

In 1982, NHTSA also began the first phase of a program to estimate the repeatability and reproducibility of the 35 mph frontal barrier vehicle impact tests. In the New Car Assessment Program, only one car of each make and model is crashed. In the repeatability program, NHTSA is testing several identical cars to provide a measurement of the variability of crash test results from one car to another. The data developed will be analyzed to determine similarities and/or differences in the performance of the test dummies and vehicles.

Consumer Information Regulations

The Consumer Information Regulations require automotive manufacturers to submit to the Agency, and make available to

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TABLE 4

1982 NEW CAR ASSESSMENT PROGRAM CRASH TEST RESULTS

VEHICLE	TEST	MIC	CHEST RESULTANT	FORMER LEADS		FMVSS		
	Speed/Weight	D/P [1]	D/P [1]	Driver L/R [2]	Pass L/R [2]	212	219	301
Chevrolet Camaro 2-door	35.4/3428	563/577	30/32	901/1004	258/358	Yes	Yes	Yes
Chevrolet Cavalier 2-door	35.0/2830	708/821	42/37	264/472	373/79	Yes	Yes	Yes
Chevrolet Celebrity 4-door	35.0/3273	478/395	33/21	774/1052	918/595	Yes	Yes	Yes
Chevrolet Chevette 4-door HB	34.8/2827	1020/715	48/40	1007/1653	449/346	Yes	Yes	Yes
Chevrolet Impala 4-door	35.2/4110	1170/[3]	40/41	940/[3]	575/375	Yes	Yes	Yes
Chrysler LeBaron 2-door CONVT.	35.0/2997	N/A	N/A	N/A	N/A	Yes	Yes	Yes
Dodge Colt 4-door HB	34.9/2488	932/1730	72/44	517/782	506/276	Yes	Yes	Yes
Dodge Omni 4-door	35.2/2670	639/1703	58/43	460/825	600/1450	Yes	Yes	Yes
Dodge 400 2-door	35.0/3044	520/756	44/41	1080/880	1011/914	Yes	Yes	Yes
Ford Escort 4-door HB	34.5/2584	950/1070	47/39	1150/1050	1518/1530	Yes	Yes	Yes
Ford Granada L 4-door	34.6/3430	860/1050	[3]/52	980/800	460/340	Yes	Yes	Yes
Ford LTD 4-door	35.5/4130	960/808	50/43	360/640	350/180	Yes	Yes	Yes
Honda Accord 4-door	34.8/2635	500/403	43/29	1078/1308	1145/754	Yes	No[4]	Yes

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TABLE 4

1982 NEW CAR ASSISSMENT PROGRAM CRASH TEST RESULTS (Continued)

VEHICLE	TEST	MIC		CHEST RESULTANT		FORMER LEADS			FMVSS	
	Speed/Weight	D/P	1	D/P	1	Driver L/R	2	Pass L/R	2	212	219	301
Lincoln Continental 4-door	34.7/4158	757/728		46/37		723/1136		1393/612		Yes	Yes	Yes
Mazda 626 4-door	35.3/2900	969/1693		47/50		575/1215		550/250		Yes	Yes	Yes
Nissan Sentra 4-door	35.2/2455	549/865		43/46		499/103		1111/251		No[4]	Yes	No[4]
Nissan Stanza 4-door HB	34.6/2686	974/879		55/39		377/449		704/1289		Yes	Yes	Yes
Renault Fuego 2-door	35.0/2902	3768/2484		50/35		493/684		396/1136		No[4]	Yes	Yes
SAAB 900 900 4-door	35.3/3220	734/1166		39/35		990/725		800/1275		Yes	Yes	Yes
Toyota Celica 2-door	34.7/3060	702/530		36/45		456/448		360/359		Yes	Yes	Yes
Toyota Corona 4-door	34.9/3040	842/828		59/40		1400/1178		888/507		Yes	Yes	Yes
Volvo DL 2-door	34.9/3354	550/381		45/35		146/1123		877/201		N/A[5]	N/A[5]	N/A[5]
Volkswagon Quantum 4-door	34.6/2954	1353/1194		53/41		180/436		561/413		Yes	Yes	Yes
VW Scirocco 2-door	35.1/2680	1482/683		54/37		330/275		200/175		Yes	Yes	Yes

1 D/P - Driver/Passenger
2 L/R - Left/Right
3 Instrumentation problem; data not available
4 Retest at 30 mph - passed
5 Not tested in these standards

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first amd prospective automobile purchasers, information on stopping distance, uniform tire quality grading, truck camper loading, and tire reserve load. This information is an outgrowth of the Congressional mandate under the National Traffic and Motor Vehicle Safety Act of 1966, and the Agency's belief that an informed marketplace is the key to improving automobile safety and performance. In providing a full range of information, the program helps consumers to compare the relative safety and performance of various domestic and foreign automobiles.

On December 30, 1982, a Notice of Proposed Rulemaking was announced to add a new requirement to the Consumer Information Regulations for "utility vehicles" (i.e., multipurpose passenger vehicles which have special features for off-the-road-operation, such as "Jeeps"). The proposed amendment would require manufacturers to place a sticker on the windshield or dashboard to make drivers more aware of handling differences between utility vehicles and passenger cars. The proposed new regulation would also require manufacturers to place information in the owners' manual concerning proper on- and off-the-road operation of these vehicles.

The tire reserve load requirement was rescinded on June 7, 1982. The tire reserve load rating was a measure of the extra load carrying capacity of a passenger care tire at recommended inflation pressure. It was intended to provide a margin of safety when a passenger car is loaded beyond its gross vehicle weight rating, but a thorough analysis of tire failure data showed no correlation between tire failure rate and tire reserve load. In addition, the reserve load information was virtually unused by consumers.

Consumer Outreach

Keeping the public informed about the safety aspects of motor vehicle travel is a particularly important NHTSA responsibility. As the federal authority on traffic safety issues, NHTSA actively cooperates with the national news media, automotive industry trade press, and other information sources to answer questions about Agency activities and to provide the public with information that can make motor vehicle travel safer.

NHTSA's efforts work to encourage safe driving practices, alerting motorists to the risks of motor vehicle transportation and informing them about available safety precautions that can reduce the risks. The Agency also provides free publications and other consumer information on a variety of automotive topics.

By providing and participating in exhibits, presentations, workshops, and conferences, NHTSA also is able to

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discuss highway safety issues formally and informally with the public. This exchange of ideas creates a better understanding of the issues on both sides and fosters workable solutions to traffic safety problems.

NHTSA's consumer outreach activities during 1982 included work in the following areas:

National Safety Belt Campaign. NHTSA convinced many national organizations to participate in the campaign by conducting extensive educational programs on safety belt use. Included were: the American Red Cross, American Driver and Traffic Safety Education Association, National Science Teacher's Association, Parent Teacher's Association, Boy Scouts of America, National Safety Council, National Association of Women Highway Safety Leaders, General Federation of Women's Clubs, National Extension Homemakers Council, Auxiliary to the American Optometric Association, American Automobile Association, National Retired Teachers Association, Consumer Product Safety Network, International Association of Chiefs of Police, National Association of State Directors of Law Enforcement Training, American Academy of Family Physicians, American Trauma Society, American Academy of Pediatrics, and major departments of the Federal Government.

In addition, corporations such as American Telephone and Telegraph, Exxon, and General Motors have instituted safety belt use policies for employees, utilizing incentive concepts to stimulate increased usage rates. Other major companies initiated public service announcements for prime time news media use. Still others, such as insurance companies, incorporated safety belt messages in magazine articles and advertisements. Two insurance companies, Nationwide and Motor Insurance Company, offer increased insurance benefits to policyholders who agree to wear safety belts. Ford now prints the "Get It Together" motto on the front side windows of all its new vehicles.

Safety belt educational program guides were developed to encourage educational programs to promote safety belts. The program guides were furnished to women's groups, the American Red Cross, driver education teachers, law enforcement agencies, commercial driving instructors, the American Automobile Association, and the Boy Scouts of America. Approximately 15,000 audiovisual kits were distributed.

Drunk Driving. With staff assistance from NHTSA, the Presidential Commission on Drunk Driving held eight public hearings across the country. The Commission published an interim report with more than 60 recommendations derived from these hearings.

Publicity and legislation directed towards the drunk driving issue increased during the year as did the influence

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of citizen activist groups, such as Mothers Against Drunk Drivers (MADD), Students Against Drunk Drivers (SADD), and local task forces. Highlighting this effort was the President's declaration of December 12-17 as "National Drunk and Drugged Driving Awareness Week."

Meetings, Workshops and Conferences:

- Lifesavers Conference

  Alcohol and Safety Belt annual forum jointly sponsored by NHTSA, the National Safety Council, and the National Association of Governors Highway Safety Representatives. It was attended by 500 people involved in highway safety. (March 31-April 2, Detroit, Michigan).

- Public Meetings on Safety Programs

  These meetings, held four times a year, are technical discussions that are generally held in Ann Arbor, Michigan. However, in response to a special request by consumer groups based in Washington that could not afford travel expenses to Michigan, the meeting site was changed to Washington, D.C. for one session (April 7).

- White House Ceremony

  Announced the Presidential Commisision on Drunk Driving and National Safety Belt Campaign. Leaders of various private sector organizations and corporations attended the ceremony to expressd their support (April 14).

- Presidential Commission on Drunk Driving

  Eight Public Hearings were held: August 2-3, Oklahoma City, Oklahoma; August 9-11, Denver, Colorado; September 8, Boston, Massachusetts; October 4, Chicago, Illinois; October 25-26, Baton Rouge, Louisiana; November 4-5, Detroit, Michigan; November 8-9, San Francisco, California; and November 29, Washington, D.C. A total of 320 group representatives and private individuals testified at these hearings.

- Safety Belts

  NHTSA staff met with approximately 50 corporate and trade association executives to solicit their participation in the Safety Belt Campaign effort and to discuss methods of promoting belt use December 2).

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Sixty-five safety belt program coordinators from the private sector met with the NHTSA staff (November 3, Washington, D.C.).

- Consumer Issues Forum

  Consumer representatives were invited to discuss NHTSA's consumer programs and ways in which the Agency's consumer information could be improved (November 19, Washington, D.C.).

New NHTSA Consumer Publications

- "Myths and Facts About Child Car Safety"
- "Rediscover the Safety Belt"
- "Safety Belt Fact Sheet"
- "Get It Together" (for employers)
- "Safety Belts, A History Lesson for Adults"
- "Three Ways to Keep a Friend"

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SUPPORT FOR MOTOR VEHICLE SAFETY

National Center for Statistics and Analysis

Reliable accident data are a key to identifying safety problems and to verifying the effectiveness of solutions. NHTSA's National Center for Statistics and Analysis develops and operates data collection and analysis programs to support motor vehicle and highway safety efforts.

The Center identifies emerging safety problems to aid the development of effective motor vehicle and highway safety countermeasures and to provide a data base that will assist program evaluations. It also helps the Agency staff by providing information so accurate responses can be made to requests from Congress, States, local governments, motor vehicle manufacturing and highway safety industries, trade associations, private citizens, and international organizations.

Data collection and analysis activities include the use of state and local records and sampling techniques that provide information on occupants, vehicles, pedestrians, injuries, collision types, environmental factors, and exposure of the driver to accident risks.

The Center already has provided important information on safety belt usage in the accident population, determining the incidence, characteristics, consequences of rollover crashes and ejections, and alcohol involvement in traffic accidents. Statistical analyses were also used to support the existing passenger car side impact standard and to consider possible improvements to the standard; the extension of occupant protection standards to light trucks and vans; and a more comprehensive understanding of impact forces and causes of occupant injury.

The Center's major data collection systems include:

- The Fatal Accident Reporting System (FARS). FARS is a census of every fatal motor vehicle accident in the United States and is based on information obtained from state records. FARS provides the Agency with data to support safety improvements in vehicle crashworthiness, crash avoidance, highway design, and driver behavior.

- National Accident Sampling System (NASS). NASS is a p nationally representative sample of all police-reported traffic accidents (approximately 7 million per year) and contains detailed information beyond what is available in state record systems on vehicle damage, occupant injury, highway environment, and the dynamics

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of the accident. Data are collected by trained accident investigators under contract to NHTSA.

NASS complements FARS by collecting details not available in police data on a sample of fatal accidents (such as crash severity and medically diagnosed injuries) and by including information on a sample of non-fatal accidents. The program uses a statistical sampling method to develop national estimates.

The full NASS design calls for 75 sites randomly selected across the United States. Operations began with a pilot test in 1978 and regular data collection in 10 sites during 1979. By the end of 1982, 50 sites were in full operation and some 8,000 accidents were investigated.

In 1982, NASS analyses of steering column performance in crashes and heavy-truck underride special study data led to greater understanding of these problem areas. A survey of non-reported accidents confirmed that the overwhelming majority of serious injuries and most minor injuries are reported to the police.

Data collection began on Federal Highway Administration special studies of accidents involving medians, barriers, poles, and crash cushions. This study will help FHWA evaluate the safety performance of these roadside objects.

- The National Crash Severity Study (NCSS). NCSS collected information on more than 12,000 tow-away accidents over a 3-year period ending in 1979. NCSS was replaced by NASS, but the information in it is still being used to analyze relationships between crash conditions and occupant injuries.

- Special Interest Accident Investigations. In-depth investigations are conducted on selected accidents of special interest, such as fatal schoolbus accidents, accidents involving motor vehicles with unique safety equipment, and accidents involving alleged safety defects. A quick-response capability enables NHTSA to investigate an accident anywhere in the U.S. within hours of its occurence. During 1982, a head/neck injury study was conducted jointly with the Washington Hospital Center.

- Monthly Fatality Reports. Early reports from each State on the previous month's fatalities are combined in a monthly report. These early estimates provide prompt analysis of national fatality trends.

- The Pedestrian Injury Causation Study (PICS). This study examined injury causes in 2,000 pedestrian accidents which occurred over a 3-year period. The resulting data file is used to determine what aspects of the front ends of motor vehicles cause pedestrian injuries. The relationships between the types of vehicles involved, collision configurations, impact forces, pedestrian size and age can be used to determine whether changes in vehicle designs would reduce injuries to pedestrians.

Vehicle Research and Test Center

NHTSA's Vehicle Research and Test Center (VRTC), located at the Transportation Research Center near East Liberty, Ohio, conducts research on how vehicles behave in driving situations and what happens when they crash. Projects range from investigating the braking and controllability of large trucks to the survival of vehicle occupants and pedestrians when crashes occur. The VRTC also conducts research to support the Agency's safety-related defect investigations.

The VRTC's truck braking and controllability program is the first serious study of heavy vehicle braking and compatibility between truck tractors and trailers. It has demonstrated significant safety benefits of several important changes in the way trucks are built and operated and has attracted the attention and support of national organizations representing truck manufacturers, operators, and drivers.

Survival in side impact crashes is being studied in a cooperative program between NHTSA and several industrial research teams through the Motor Vehicle Manufacuters Association. VRTC projects include evaluation and development of anthropomorphic (human-like) test devices for studying the injury effects of side impact crashes and the evaluation of vehicle structures through both component tests and full-scale vehicle crash tests.

Research on pedestrian injuries includes investigations of pedestrian accidents to acquire detailed information about the accident, damage to the vehicle, and the resulting injuries. In some cases, the damaged parts of the vehicle are obtained to allow exact replication of the impact in the laboratory. This enables NHTSA engineers to study what happened in the accident and make a correlation between impact forces and specific injuries. The resulting data will support pedestrian and vehicle occupant crash survival efforts, as well as other injury prevention activities.

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TABLE 5

DATA ACQUISITION AND STATISTICAL ANALYSIS

RESEARCH ACCOMPLISHMENTS	APPLICATIONS
Continued expansion of the National Accident Sampling System (NASS).	To provide detailed data on motor vehicle accidents for nationally representative statistics which determine magnitude of highway safety problems, injured population, mechanisms of injury, and social loss. A total of 50 sites are contracted for operation.
Operated the Fatal Accident Reporting System (FARS).	To provide NHTSA with a continous census of nationwide fatal accident information and data support for safety improvements in vehicle crashworthiness, crash avoidance measures, highway design, and driver behavior. 1982 was FARS' 7th year of operation.
Continued the sample design for the driver survey of exposure data.	To act as an initial component of the exposure data collection system which will supplement accident data, especially in the analysis of factors contributing to traffic accidents.
Completed analysis of the Pedestrian Injury Causation Study (PICS) to support the development of a laboratory test device modeling vehicle-pedestrian impacts.	To identify injury mechanism, determine pedestrian injury severity, and evaluate the effect of vehicle exterior features on pedestrian injuries.

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TABLE 5

DATA ACQUISITION AND STATISTICAL ANALYSIS (Continued)

RESEARCH ACCOMPLISHMENTS	APPLICATIONS
Provide analysis in support rule making activies.	To provide data and analysis for crashworthiness rulemaking programs involving passenger cars, light trucks and vans, heavy trucks, motorcycles, and pedestrians.
Began analysis of the National Personal Transportation Survey.	To supplement accident data, especially in the analysis of factors contributing to traffic accidents.
Completed field survey of unreported accidents.	To determine the magnitude and characteristics of unreported accidents.
Completed the "Accident Analysis of Collisions with Breakaway and Non-Breakaway Poles" study.	To determine the relationship between the performance of breakaway sign and light poles and occupant injury for different vehicle sizes.
Continued the development of a methodology for accident causation research.	To determine problem areas and effective approaches to the development of the methodology.

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TABLE 5

DATA ACQUISITION AND STATISTICAL ANALYSIS (Continued)

RESEARCH ACCOMPLISHMENTS	APPLICATIONS
Continued the investigation of special interest accident investigations (air bags, brakes and schoolbuses).	To support NHTSA operating offices.
Completed and published reports on a study to determine the incidence of alcohol, marijuana, and several other drugs in drivers who were treated at a hospital for injuries sustained in a motor vehicle accident. Data collection and analysis was completed on 500 drivers.	To estimate the incidence of alcohol, marijuana, tranquilizers, and other drugs in injury-producing motor vehicle accidents. To determine the behavioral errors drivers commit while under the influence of of these drugs.
Initiated a head/neck injury study.	To support the analysis of human tolerance for better modeling of human performance tests.
Completed an analysis of FARS and NASS data to estimate alcohol involvement in traffic accidents.	To make national estimates of the incidence of alcohol involvement in fatal, injury producing, and property damage accidents. Also to determine alcohol involvement in drivers of various types of vehicles in accidents (passenger cars, light trucks and vans, motorcycles, heavy trucks, recreational vehicles and pedestrians or pedalcyclists) and on drivers of various age groups.
Completed a report on pedestrian accidents.	To update information on pedestrian accidents based on four studies conducted between 1970 and 1980.

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TABLE 5

DATA ACQUISITION AND STATISTICAL ANALYSIS (Continued)

RESEARCH ACCOMPLISHMENTS	APPLICATIONS
Analyzed side impact data in a cooperative program with the Motor Vehicle Manufacturers Association.	To share side impact accident data from government and industry; to establish side impact injury types, severities, and sources.
Studied fatal accidents in which utility vehicles rolled over.	To determine whether certain vehicle makes are more likely to roll over than others.
Analyzed passenger car steering column performance.	To study the crash performance of different energy-absorbing steering column designs and to suggest improvements.
Examined the relative safety of large and small cars.	To determine whether the increasing numbers of small cars pose new problems for the Agency to address.
Prepared a survey of current results on safety belt usage and effectiveness.	To make the latest data available for the Agency's safety belt campaign.
Studied accidents in which a passenger car underrides a heavy truck.	To estimate the size of this safety problem and to help quantify potential benefits from proposed solutions.
Prepared a descriptive review of ejection accidents.	To describe and quantify this significant safety problem.

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TABLE 5

DATA ACQUISITION AND STATISTICAL ANALYSIS (Continued)

RESEARCH ACCOMPLISHMENTS	APPLICATIONS
Prepared a complete review of existing exposure data and analysis.	To summarize existing knowledge and to lay a foundation for further work.
Studied analytic means for combining incomplete exposure data sets.	To seek alternatives to expensive field data collection of complete exposure data and to supplement or enhance necessarily minimal exposure data collections.
Began analysis of truck brake accidents in the Bureau of Motor Carrier Safety data.	To increase understanding of a major crash avoidance area involving brake failures and inadequacies in trucks.

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Harmonization of Regulations

The international harmonization of motor vehicle safety standards is a NHTSA priority because the automotive industry is becoming increasingly international in vehicle design. The advent of the "world car" concept has brought to the forefront the issue of design variations that must be produced in order to comply with differing regulations in world markets. Countries often require conflicting performance standards, safety tests procedures, compliance criteria, and means of certifying compliance. These differing regulations make it technically burdensome for manufacturers to construct vehicles for domestic and foreign markets. Incompatible rules also can serve as non-tariff trade barriers that are costly to consumers and industry.

A successful harmonization program will result in increased production, marketing flexibility, and cost savings to vehicle manufacturers, without compromising safety in many cases. In some cases, harmonization will promote safety by upgrading standards and will encourage the sharing of safety technology by removing the differences between domestic and export vehicles.

It is likely that evolving automotive standards in developing nations will follow patterns established by the European community. If U.S. manufacturers are to have attractive competitive opportunities in those markets, it is important to reduce or eliminate inconsistencies between U.S. and European standards.

The principal forum for harmonization negotiations is the United Nations Economic Commission for Europe (ECE). The Commission was established at the end of World War II and the U.S., represented by NHTSA, is a full voting member. Within the ECE, motor vehicle harmonization is negotiated at Working Party 29 (WP29) and its eight technical sub-units, called Groups of Rapporteurs.

In addition to relying upon NHTSA's technical and policy expertise, the Commission's harmonization effort involves input from the industry and consumers and is fully coordinated with the federal international trade community.

During 1982, NHTSA issued a Notice of Proposed Rulemaking to harmonize FMVSS No. 101, "Controls and Displays," with European rules. Substantial progress was made in the areas of brakes and lighting. The National Highway Traffic Safety Administration led a delegation to Japan in December 1982, to discuss differences in U.S. and Japanese certification systems.

Since 1980, NHTSA has actively participated in efforts of the ECE to harmonize the brake safety standards of Europe,

North America, and Japan. In February 1982, NHTSA and the Motor Vehicle Manufacturers Association hosted a meeting in Detroit of the ECE committee discussing this issue. The Agency also participated in meetings of the same committee in Paris and Geneva in 1982. Tentative agreements have been reached on all major aspects of a proposed common test procedure.

In support of this program, NHTSA joined with the Canadian Ministry of Transport and manufacturers to conduct an extensive vehicle test program during 1982. Approximately 30 passenger cars and a few light trucks were tested, mostly at NHTSA's Vehicle Research and Test Center at East Liberty, Ohio. The results of this research are being used to evaluate the tentative test procedures and to recommend braking performance levels.

Management Improvements

In response to the President's direction that federal agencies reduce costs and improve efficiency, the NHTSA fiscal year 1982 Cost Avoidance, Reduction and Efficiency (CARE) program achieved a savings of $2.6 million.

A series of actions was completed to adjust the size of workforce. These actions not only reduced NHTSA employment but also provided information and assistance to employees who were affected by the workforce adjustment. The Agency's total employment decreased from 746 full-time permanent positions in 1981 to 619 in 1982.

The new NHTSA organizational structure that became effective July 31, 1982, provides a better balance between the technological and the human factors in solving traffic safety problems. It reflects an added reliance on forces within the marketplace to bring about safety advances that regulation alone does not achieve and greater emphasis on the international harmonization of motor vehicle safety requirements. The revised organization emphasizes safety belt usage, efforts to discourage drunk driving, traffic law enforcement, and emergency medical services, which are expected to yield the greatest reduction in traffic accidents and injuries.

In keeping with the requirements of the Paperwork Reduction Act of 1980, the Agency has worked to reduce the paperwork burden on the public. In FY 1982, NHTSA requested 58,373,890 burden hours,* down from 86,255,342 in FY 1981.

* "Burden hours" is Office of Management and Budget (OMB) term used to define the time taken by a member of the public to provide information under an OMB requirement.

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This decrease of 27,881,452 burden hours is due mainly to program clarifications in the area of recordkeeping requirements which appeared to be imposed on the States.

NHTSA has designed and implemented an Executive Management Information System (EMIS) which has enhanced short-range planning and day-to-day management. The EMIS identifies and tracks priority activities, milestones, and products. It identifies delays or required schedule adjustments and provides additional reference data for decisionmaking.

Civil Rights

In spite of the 8.2 percent NHTSA staff reduction in 1982, minority employment at the Agency remained unchanged at 23 percent. The percentage of female employment declined only slightly from 36 percent to 33 percent of the total workforce.

NHTSA continued to provide resources for programs designed to bring about affirmative implementation of the Equal Employment Opportunity (EEO) program, such as the Federal Womens', Hispanic Employment and other special emphasis programs and activities; EEO Counselor program; and the Department of Transportation Civil Rights Conference. Additionally, the Stay-In-School program, which employs underprivileged students, received funding for 33 participants, including 23 minorities.

There was also an increase in the numbers of minorities and women receiving employee awards and promotions, with the actual distribution exceeding the percentage of minorities and women in the total NHTSA workforce.

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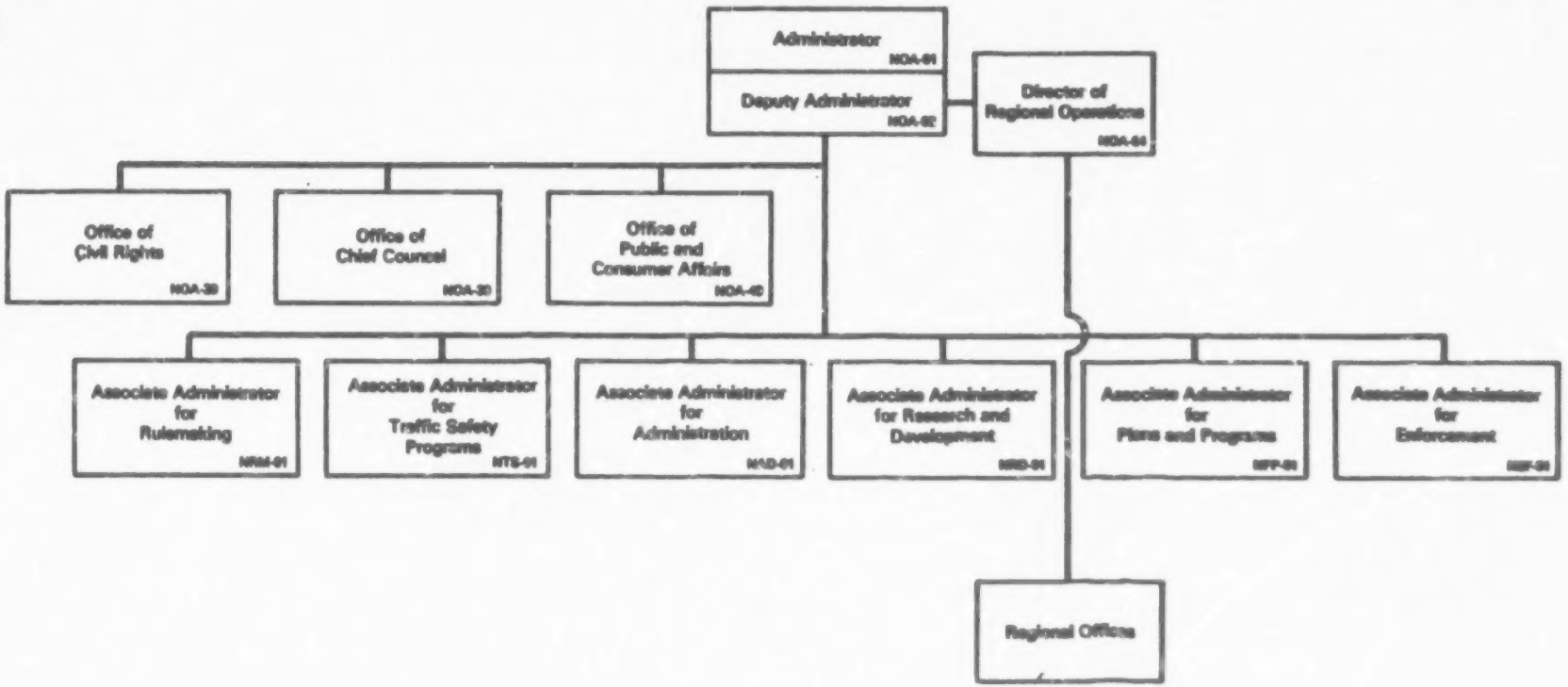
FIGURE 1

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ORGANIZATIONAL CHART



APPENDIX A
Statistical Compilation

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LIST OF TABLES

Table	Page	
A-1	A-1	Basic Data Pertaining to Motor Vehicle Traffic Accidents, United States, 1962-1982
A-2	A-1	Fatality Rates for the United States and Selected Foreign Countries, 1981
A-3	A-2	Basic Statistics About Motor Vehicle Traffic Deaths in the United States, 1962, 1972-1982
A-4	A-2	Growth in Population and Motor Vehicle Registration, 1971, 1981-1982
A-5	A-3	Types of Motor Vehicles Involved in Fatal Accidents, 1981-1982
A-6	A-3	Comparison of Number of Miles Traveled Annually by Type of Vehicle, 1981-1982
A-7	A-4	Passenger Car Occupant Fatalities by Size of Car, 1975-1982, in Single Vehicle Fatal Accidents (Unknowns have been Distributed in Table*)
A-8	A-4	Passenger Car Occupant Fatalities by Size of Car, 1975-1982, in Multiple Vehicle Fatal Accidents (Unknowns have been Distributed in Table*)
A-9	A-5	Comparison of Fatalities in Two-Vehicle Accidents Among Vehicles of Different Sizes, 1982
A-10	A-5	Fatality Rates and Vehicle Involvement Rates by Vehicle Type (in Fatal Accidents), 1981
A-11	A-5	Vehicle Involvement Rates in Fatal Accidents, 1982
A-12	A-6	Percent Distribution, by Age, of Drivers Involved in Fatal Accidents, 1982
A-13	A-6	Percent Distribution, by Age, of Male Drivers Involved in Fatal Accidents, 1982
A-14	A-7	Percent Distribution, by Age, of Female Drivers Involved in Fatal Accidents, 1982
A-15	A-7	Traffic Fatalities by Age Group - 1975, 1981, 1982
A-16	A-8	Number and Distribution of Motor Vehicle Traffic Fatalities by Type, 1962-1982
A-17	A-8	Number and Population Death Rate of Motor Vehicle Traffic Fatalities by Type in the Accident, 1962-1982
A-18	A-9	Leading Causes of Death by Age and Sex, 1979

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LIST OF FIGURES

Figure	Page	
A-1	A-11	Motor Vehicle Traffic Fatalities by State, 1982, and Percent Change from 1981
A-2	A-12	Motor Vehicle Traffic Death Rate, 1982, and Percent Change from 1981
A-3	A-13	Trends in Vehicle Mileage and Mileage Death Rate, 1962-1982
A-4	A-13	Trends in Motor Vehicle Registrations, Licensed Drivers and Vehicle Miles of Travel, 1962-1982
A-5	A-13	Trend in Motor Vehicle Death Rates, 1962-1982
A-6	A-13	Trend in Ratios of Registered Vehicles to Drivers and Population, 1962-1982
A-7	A-14	Comparison of Traffic Deaths and Industrial Production Index, U.S., 1962-1982
A-8	A-14	Monthly Death Rates for 1972, 1973, and 1982
A-9	A-14	Weekend-Weekday Contrast in Fatality Rates, 1982
A-10	A-14	Total Motor Vehicle Travel, 1962-1982
A-11	A-15	Motor Vehicle Travel on the Interstate Highway System, 1975-1982
A-12	A-15	Motor Vehicle Travel on Non-Interstate Highway Systems, 1975-1982
A-13	A-16	Licensed Drivers and Population by Age Group, 1982
A-14	A-16	Percent Increase in Licensed Drivers and Population by Age Group, 1972-1982
A-15	A-17	Distribution of Male Licensed Drivers and Population by Age Group, 1982
A-16	A-17	Percent Increase in Male Licensed Drivers and Population by Age Group, 1972-1982
A-17	A-18	Distribution of Female Licensed Drivers and Population by Age Group, 1982
A-18	A-18	Percent Increase in Female Licensed Drivers and Population by Age Group, 1972-1982
A-19	A-19	Pedestrian and Motor Vehicle Occupant Fatalities, 1962-1982
A-20	A-19	Motorcycle and Bicycle Fatalities, 1962-1982

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Table A-1 **Basic Data Pertaining to Motor Vehicle Traffic Accidents United States, 1962-82**

Year	Resident Population (thousands)	Licensed Drivers (thousands)	Registered Motor Vehicles (thousands)	Vehicle Miles Traveled (billions)	Traffic Deaths	Mileage Death Rate (Deaths per Hundred-Million vehicle Miles)
1962	185,771	90,588	79,811	767	38,980	5.08
1963	188,483	93,573	83,483	805	41,723	5.18
1964	191,141	95,468	87,299	846	45,645	5.39
1965	193,526	98,502	91,740	888	47,089	5.30
1966	195,576	100,998	95,703	926	50,894	5.50
1967	197,457	103,172	98,859	964	50,724	5.26
1968	199,399	105,410	102,987	1,016	52,725	5.19
1969	201,385	108,306	107,412	1,062	53,543	5.04
1970	203,984	111,543	111,242	1,110	52,627	4.74
1971	206,827	114,426	116,330	1,179	52,542	4.46
1972	209,284	118,414	122,557	1,260	54,589	4.33
1973	211,357	121,546	130,025	1,313	54,052	4.12
1974	213,342	125,427	134,900	1,281	45,196	3.53
1975	215,465	129,791	137,913	1,328	44,525	3.35
1976	217,563	134,036	143,476	1,402	45,523	3.25
1977	219,760	138,121	147,262	1,467	47,878	3.26
1978	222,095	140,844	153,637	1,545	50,331	3.26
1979	224,567	143,284	159,621	1,529	51,093	3.34
1980	227,158	145,299	161,614	1,528	51,091	3.34
1981	229,307	147,075	164,118	1,556	49,301	3.17
1982	231,534	150,310	165,253	1,592	43,945	2.76

SOURCES: Vehicle Travel, Registered Vehicles and Licensed Drivers from Federal Highway Administration, Highway Statistics Division
Population from U.S. Bureau of the Censes (July 1 estimate)
Traffic Deaths: 1962-74, from National Center for Health Statistics, H.H.S. and State Accident Summaries (Adjusted to 30-Day Traffic Deaths)
1975-82 from Fatal Accident Reporting System (30-Day Traffic Deaths)

Table A-2 **Fatality Rates for the United States and Selected Foreign Countries, 1981**

	Passenger Car Occupant Fatalities		All Fatalities	
Country	Fatalities per 100 Million Vehicle-Kilometers	Fatalities per 10,000 Registered Cars	Fatalities per 100 Million Vehicle-Kilometers	Fatalities per 10,000 Population
Austria	3.6	3.8	5.7	2.5
Belgium	3.5	3.7	N/A	2.2
Germany	2.0	2.4	3.6	1.9
Great Britain	1.1	1.5	2.2	1.1
Netherlands	1.5	1.9	2.7	1.3
Norway	1.1	1.3	1.9	0.8
Spain	4.6	3.4	9.1	1.8
Sweden	1.0	1.5	N/A	0.9
Switzerland	1.4	2.0	N/A	1.8
United States	1.5	2.3	2.0	2.1

SOURCE: Statistics of Road Traffic Accidents in Europe, United Nations
Trends in Road Accidents, European Conference of Ministers of Transport

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Table A-3 **Basic Statistics About Motor Vehicle Traffic Deaths in the United States, 1962, 1972–82**

Item	1962	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Deaths	38,980	54,589	54,052	45,196	44,525	45,523	47,878	50,331	51,093	51,091	49,301	43,945
Percent Change from Previous Year		+3.9	−1.0	−16.4	−1.5	+2.2	+5.2	+5.1	1.5	0.0	−3.5	−10.9
Motor Vehicle Travel (billions of vehicle miles)	767	1,260	1,313	1,281	1,328	1,402	1,467	1,545	1,529*	1,528	1,556	1,592
Registered Motor Vehicles (100,000)	798	1,226	1,300	1,349	1,379	1,435	1,473	1,536	1,596	1,616	1,641	1,653
Resident Population (100,000)	1,858	2,093	2,114	2,133	2,155	2,176	2,198	2,221	2,246	2,272	2,293	2,315
Licensed Drivers (100,000)	906	1,184	1,215	1,254	1,298	1,340	1,381	1,408	1,433	1,453	1,471	1,503
Death Rates												
Per Hundred Million Vehicle Miles	5.08	4.33	4.12	3.53	3.35	3.25	3.26	3.26	3.34	3.34	3.17	2.76
Percent Change from Previous Year		−2.9	−4.8	−14.3	−5.1	−3.0	+.3	0.0	+2.5	0.0	−5.1	−12.9
Per 100,000 Registered Vehicles	48.85	44.54	41.57	33.50	32.28	31.73	32.51	32.76	32.01	31.62	30.04	26.59
Per 100,000 Resident Population	20.98	26.08	25.57	21.18	20.66	20.92	21.79	22.66	22.75	22.49	21.50	18.98
Per 100,000 Licensed Drivers	43.02	46.10	44.47	36.03	34.31	33.96	34.66	35.74	35.66	35.16	33.52	29.24
Vehicle & Driver Relationships												
Ratio, Registered Motor Vehicles to Licensed Drivers	0.88	1.03	1.07	1.08	1.06	1.07	1.07	1.09	1.11	1.11	1.12	1.10
Ratio, Registered Motor Vehicles to Resident Population	0.43	0.59	0.62	0.63	0.64	0.66	0.67	0.69	0.71	0.71	0.72	0.71
Ratio, Licensed Drivers to Resident Population	0.49	0.57	0.58	0.59	0.60	0.62	0.63	0.63	0.64	0.64	0.64	0.65

P = Provisional

SOURCES: Deaths: 1962-74, estimated by NHTSA from data supplied by the National Center for Health Statistics, H.H.S., and State Accident Summaries (Adjusted to 30-Day Deaths)
1975-82 from Fatal Accident Reporting System (FARS), NHTSA

Table A-4 **Growth in Population and Motor Vehicle Registration, 1971, 1981—82**

	1971	1981	Ave. Annual Percent Increase 1971–1981	Percent Increase 1971–1981	1982	Percent Increase 1981–1982
Total Registered Motor Vehicles	116,330,037	164,117,547	3.50	41.08	165,253,288	+0.7
Automobiles	92,718,395	123,291,411	2.89	32.97	123,697,865	+0.3
Trucks	19,870,872	34,451,110	5.66	73.37	35,252,763	+2.3
Schoolbuses	306,777	436,579	3.59	42.31	445,729	+2.1
Commercial Buses	90,298	107,315	1.74	18.85	113,468	+5.7
Motorcycles	3,343,695	5,831,132	5.72	74.39	5,743,463	−1.5
U.S. Resident Population, July 1	206,827,000	229,307,000	1.04	10.87	231,534,000	+1.0
Registered Motor Vehicles Per Capita	0.56	0.72	2.54	28.57	0.71	−1.4

SOURCES: Federal Highway Administration, U.S. Census Bureau
NOTE: The rate of increase for motorcycles has slowed considerably since the early seventies.
Numbers of commercial vehicles are growing faster than the number of passenger cars.

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Table A-5 **Types of Motor Vehicles Involved in Fatal Accidents, 1981–82**

	Percent of All Vehicles Registered		Percent of All Vehicles in Fatal Accidents	
Type of Vehicle	**1981**	**1982**	**1981**	**1982**
Passenger Car	75.1	74.9	62.0	60.8
Motorcycle	3.6	3.4	7.9	8.0
Commercial Bus	0.1	0.1	0.3	0.3
Schoolbus	0.3	0.3	0.2	0.2
Single-Unit Truck	20.2	20.6	19.4	19.6
Pickup and Van	—	—	(17.4)	(18.0)
Other S.U. Truck	—	—	(2.0)	(1.6)
Multiunit Truck	0.7	0.7	6.4	6.4
Other	—	—	3.9	4.7

SOURCE: Accident data: NHTSA Fatal Accident Reporting System
Registration data: Federal Highway Administration

NOTE: Motorcycles and heavy trucks are over-represented in fatal accidents. The weight of trucks makes them especially lethal in highway accidents while motorcycles are extremely vulnerable to injury.

Table A-6 **Comparison of Number of Miles Traveled Annually by Type of Vehicle, 1981–82**

	Total Travel*			Average Annual Travel Per Vehicle		
Type of Vehicle	**1981**	**1982**	**% Change**	**1981**	**1982**	**% Change**
Passenger Cars	1,109,843	1,133,883	+2.2	9,002	9,167	+1.8
Motorcycles	15,000	15,000	0.0	2,573	2,612	+1.5
Commercial Buses	3,541	3,577	+1.0	32,996	31,524	−4.5
Schoolbuses	2,960	3,062	+3.4	6,780	6,780	+1.3
Single-Unit Trucks	366,090	376,649	+2.9	11,028	11,064	+0.3
Multiunit Trucks	59,037	60,310	+2.2	47,023	49,847	+6.0
All Motor Vehicles	1,556,471	1,592,481	+2.3	9,484	9,637	+1.6

*Millions of vehicle miles
SOURCE: Federal Highway Administration

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Table A-7 Passenger Car Occupant Fatalities by Size of Car, 1975–82 In Single Vehicle Fatal Accidents (Unknowns have been Distributed in Table*)

Size	1975	1976	1977	1978	1979	1980	1981	1982	Percent Change 1975–82	Percent Change 1981–82
Total	12,431	12,676	12,474	12,864	12,929	13,480	12,539	10,879	-12.5	-13.2
Percent	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)		
Small Subcompact	1,741	1,800	2,008	2,034	2,297	2,503	2,573	2,325	+33.5	-9.6
	(14)	(14)	(16)	(16)	(18)	(19)	(20)	(21)		
Subcompact	761	791	877	1,011	1,183	1,408	1,501	1,469	+93.0	-2.1
	(6)	(6)	(7)	(8)	(9)	(10)	(12)	(13)		
Small Compact	445	471	404	481	509	562	624	625	+40.4	+0.2
	(4)	(4)	(3)	(4)	(4)	(4)	(5)	(6)		
Compact	2,618	2,637	2,496	2,631	2,854	3,097	2,708	2,366	-9.6	-12.6
	(21)	(21)	(20)	(20)	(22)	(23)	(22)	(22)		
Intermediate	4,483	4,451	4,349	4,333	3,963	3,755	3,422	2,792	-37.7	-18.4
	(36)	(35)	(35)	(34)	(31)	(28)	(27)	(26)		
Full Size	2,383	2,526	2,342	2,374	2,123	2,155	1,711	1,302	-45.4	-23.9
	(19)	(20)	(19)	(18)	(16)	(16)	(14)	(12)		

SOURCE: Fatal Accident Reporting System (FARS), NHTSA.
NOTE: The classification of passenger cars reflects the following groupings by "wheelbase" dimensions:
- Small Subcompact - Less than or equal to 96 inches
- Subcompact - Greater than 96-101 inches inclusive
- Small Compact - Greater than 101-106 inches inclusive
- Compact - Greater than 106-111 inches inclusive
- Intermediate - Greater than 111-120 inches inclusive
- Full Size - Greater than 120 inches

*The following passenger car occupant fatalities, where the wheelbase was unknown, have been included in the table and distributed in proportion to the fatalities where the size of the car was known.

Unknown Size	4,411	4,002	3,614	3,290	2,500	2,002	1,722	1336	

Table A-8 Passenger Car Occupant Fatalities by Size of Car, 1975–82 In Multiple Vehicle Fatal Accidents (Unknowns have been Distributed in Table*)

Size	1975	1976	1977	1978	1979	1980	1981	1982	Percent Change 1975–1982	Percent Change 1981–1982
Total	13,498	13,490	14,308	15,289	14,879	13,969	14,106	12,451	-7.8	-11.7
Percent	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)		
Small Subcompact	2,432	2,650	2,949	3,194	3,364	3,337	3,718	3,278	+34.8	-11.8
	(18)	(20)	(21)	(21)	(23)	(24)	(26)	(26)		
Subcompact	808	957	1,142	1,251	1,389	1,511	1,666	1,574	+94.8	-5.5
	(6)	(7)	(8)	(8)	(9)	(11)	(12)	(13)		
Small Compact	549	573	574	633	712	746	964	1,030	+87.6	+6.8
	(4)	(4)	(4)	(4)	(5)	(5)	(7)	(8)		
Compact	2,337	2,432	2,572	2,919	2,970	2,933	2,924	2,662	+13.9	-9.0
	(17)	(18)	(18)	(19)	(20)	(21)	(21)	(22)		
Intermediate	4,437	4,056	4,173	4,422	4,037	3,571	3,134	2,665	-39.9	-15.0
	(33)	(30)	(29)	(29)	(27)	(25)	(22)	(21)		
Full Size	2,935	2,822	2,898	2,870	2,407	1,871	1,700	1,242	-57.7	-26.9
	(22)	(21)	(20)	(19)	(16)	(14)	(12)	(10)		

SOURCE: Fatal Accident Reporting System (FARS), NHTSA.
NOTE: The classification of passenger cars reflects the following groupings by "wheelbase" dimensions:
- Small Subcompact - Less than or equal to 96 inches
- Subcompact - Greater than 96-101 inches inclusive
- Small Compact - Greater than 101-106 inches inclusive
- Compact - Greater than 106-111 inches inclusive
- Intermediate - Greater than 111-120 inches inclusive
- Full Size - Greater than 120 inches

*The following passenger car occupant fatalities, where the wheelbase was unknown, have been included in the table and distributed in proportion to the fatalities where the size of the car was known.

Unknown Size	4,750	4,072	3,904	3,598	2,660	1,941	1,653	1,469	

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Table A-9 Comparison of Fatalities in Two-Vehicle Accidents Among Vehicles of Different Sizes, 1982

		Size of the Larger Vehicle in the Crash				
		Compact	Intermediate	Full Size	Light Truck	Heavy Truck
Size of Smaller Vehicle in the Crash	Subcompact	3.0	7.3	7.1	7.4	41.6
	Compact		2.1	4.0	3.6	42.8
	Intermediate			1.6	1.6	25.0
	Full-Size				1.5	27.9
	Light Truck					24.8

SOURCE: Fatal Accident Reporting System (FARS), NHTSA.
NOTE: This chart illustrates the relative probabilities of fatal injuries to occupants when vehicles of different sizes are involved in accidents. For example, in a collision of a subcompact and a full-size car the occupants of the smaller car are 7.1 times more likely to be killed that the occupants of the full-size auto.

Table A-10 Fatality Rates and Vehicle Involvement Rates by Vehicle Type (in Fatal Accidents) 1981

Vehicle Type	Occupant Fatality Rate Per 100 Million Vehicle Miles	Occupant Fatality Rate Per 10,000 Registered Vehicles	Vehicle Involvement Rate (In Fatal Accidents) Per 100 Million Vehicle Miles	Vehicle Involvement Rate (In Fatal Accidents) Per 10,000 Registered Vehicles
Passenger Car	2.40	2.16	3.50	3.15
Motorcycle	32.71	8.41	33.09	8.51
Bus	0.84	1.03	5.26	6.29
Truck	1.73	2.13	3.85	4.75
Single Unit Truck	1.76	1.94	3.31	3.65
Combination Truck	1.42	6.69	6.77	31.84
All Vehicle Types (Less Motorcyles)	2.30	2.24	3.75	3.65

SOURCE: Fatalities—Fatal Accident Reporting System (FARS), NHTSA (30 Day Deaths)
Vehicle Travel and Registered Vehicles—Federal Highway Administration.

Table A-11 Vehicle Involvement Rates in Fatal Accidents, 1982

Vehicle Type	Vehicle Involvement Rate Per 10,000 Registered Vehicles
Passenger Car	2.99
Motorcycle	7.70
Truck	4.20
All Vehicle Types (Less Motorcyles)	3.25

Source: Fatal Accident Reporting system (FARS), NHTSA.
Registered Vehicles, Federal Highway Administration.

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Table A-12 **Percent Distribution, by Age, of Drivers Involved in Fatal Accidents, 1982**

Type of Accident	Age of Driver						
	Under 20	20-24	25-34	35-44	45-54	55-64	Over 64
Licensed Drivers	7.7	13.0	25.2	17.2	13.6	12.4	10.9
All Fatal Accidents	14.1	20.4	26.4	14.3	8.9	7.0	6.9
Single Vehicle:							
Overturn in Road	18.6	24.2	29.1	12.7	6.9	4.9	3.4
Other Noncollision	15.1	17.1	32.6	13.7	7.3	6.2	6.1
Collision w/Fixed Object	18.3	25.4	26.5	11.7	7.0	5.5	5.4
Multivehicle:							
Rear End	10.8	17.7	27.0	17.3	11.3	8.2	6.8
Head On	12.9	19.9	27.3	16.0	9.9	7.9	5.9
Angle	13.1	17.9	24.7	14.1	9.6	8.4	11.7
Sideswipe	11.2	17.4	27.3	17.4	11.4	7.4	6.3
Pedestrian	10.7	18.0	25.5	14.6	8.2	6.3	4.4
Pedalcyclist	14.4	18.6	26.9	11.6	9.5	7.3	6.0

SOURCE: Fatal Accident Reporting System (FARS), NHTSA

NOTE: Drivers under 25 are over-involved in all types of accidents, compared to the total number of licensed drivers in that age group. The over-involvement is greatest for single-vehicle accidents. Both male and female drivers in this age group show the same pattern of over-representation. Drivers ages 35 and older are generally in fewer accidents than would be expected on the basis of their numbers.

Table A-13 **Percent Distribution, by Age, of Male Drivers Involved in Fatal Accidents, 1982**

Type of Accident	Age of Driver						
	Under 20	20-24	25-34	35-44	45-54	55-64	Over 64
Licensed Drivers	7.9	12.9	24.8	16.9	13.5	12.5	11.5
All Fatal Accidents	14.2	21.3	27.4	14.5	9.0	6.8	6.4
Single Vehicle:							
Overturn in Road	18.0	24.8	30.2	12.7	6.8	4.6	2.9
Other Non-Collision	15.4	16.9	32.9	13.5	7.9	5.8	6.7
Collision w/Fixed Object	18.2	26.3	27.2	11.5	6.8	5.0	4.7
Multi-Vehicle:							
Rear End	10.6	17.8	27.7	17.8	11.3	8.2	6.5
Head On	12.6	20.3	27.6	16.0	9.9	7.8	5.7
Angle	13.3	18.8	25.4	14.2	9.6	7.8	10.7
Sideswipe	11.9	17.6	27.5	17.0	11.8	7.7	6.0
Pedestrian	11.5	20.2	29.0	16.4	9.5	7.2	4.9
Pedalcyclist	15.0	19.0	28.4	13.4	10.5	7.4	5.9

SOURCE: Fatal Accident Reporting System (FARS), NHTSA.

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Table A-14 **Percent Distribution, by Age, of Female Drivers Involved in Fatal Accidents, 1982**

Type of Accident	Age of Driver						
	Under 20	20-24	25-34	35-44	45-54	55-64	Over 64
Licensed Drivers	7.5	13.1	25.7	17.5	13.7	12.3	10.2
All Fatal Accidents	14.7	18.2	24.8	14.7	9.3	8.5	9.7
Single Vehicle:							
Overturn in Road	21.3	21.8	24.0	12.7	7.5	6.5	6.0
Other Noncollision	14.8	19.1	33.0	15.7	5.2	8.7	3.5
Collision w/Fixed Object	18.5	20.6	22.4	12.8	7.7	8.2	9.7
Multi-Vehicle:							
Rear End	12.2	17.5	25.0	16.0	11.8	8.6	8.9
Head On	14.3	18.3	26.4	15.9	10.3	8.2	6.8
Angle	12.8	14.8	22.4	14.0	9.9	10.6	15.5
Sideswipe	8.6	17.9	28.0	20.4	10.4	6.5	7.9
Pedestrian	14.1	20.4	27.8	16.9	8.3	6.7	5.2
Pedalcyclist	15.8	22.1	28.4	8.4	8.4	9.0	7.9

SOURCE: Fatal Accident Reporting System (FARS), NHTSA

Table A-15 **Traffic Fatalities by Age Group — 1975, 1981, 1982**

	1975	1981	1982	% Change 1975-81	% Change 1981-82
All ages	44,525	49,301	43,945	-1.3	-10.9
0-4	1,313	996	1,003	-23.6	+0.7
5-14	3,182	2,390	2,179	-31.5	-8.9
15-24	15,465	16,882	14,912	-3.6	-11.4
25-34	7,503	10,737	9,267	+23.5	-13.6
35-44	4,191	5,133	4,848	+15.7	-5.6
45-54	3,939	3,847	3,340	-15.2	-13.2
55-64	3,398	3,529	3,147	-7.4	-10.8
65 & Over	5,326	5,312	5,005	-6.0	-5.8
Age Not Stated	208	545	244	+17.3	-55.2

SOURCE: Fatal Accident Reporting System (FARS), NHTSA (30-Day Traffic Deaths)

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Table A-16 Number and Distribution of Motor Vehicle Traffic Fatalities by Type, 1962–82

Year	Total		Bicyclists*		Motorcyclists		Pedestrians*		Others**	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1962	38,980	100.00	550	1.41	810	2.08	7,320	18.78	30,300	77.73
1963	41,723	100.00	580	1.39	940	2.25	7,430	17.81	32,773	78.55
1964	45,645	100.00	690	1.51	1,240	2.72	8,100	17.74	35,615	78.03
1965	47,089	100.00	690	1.47	1,650	3.50	7,990	16.97	36,759	78.06
1966	50,894	100.00	730	1.44	2,230	4.38	8,530	16.76	39,404	77.42
1967	50,724	100.00	750	1.48	2,170	4.28	8,460	16.68	39,344	77.56
1968	52,725	100.00	700	1.33	1,940	3.68	8,800	16.69	41,285	78.30
1969	53,543	100.00	710	1.33	1,870	3.49	8,710	16.27	42,253	78.91
1970	52,627	100.00	760	1.44	2,280	4.33	8,950	17.01	40,637	77.22
1971	52,542	100.00	860	1.64	2,650	5.04	9,100	17.32	39,932	76.00
1972	54,589	100.00	990	1.82	3,030	5.55	9,200	16.85	41,369	75.78
1973	54,052	100.00	1,070	1.98	3,230	5.98	8,930	16.52	40,822	75.52
1974	45,196	100.00	1,040	2.30	3,370	7.46	7,540	16.68	33,246	73.56
1975	44,525	100.00	1,003	2.25	3,189	7.16	7,516	16.88	32,817	73.71
1976	45,523	100.00	914	2.01	3,312	7.28	7,427	16.31	33,870	74.40
1977	47,878	100.00	922	1.93	4,104	8.57	7,732	16.15	35,120	73.35
1978	50,331	100.00	892	1.77	4,577	9.09	7,795	15.49	37,067	73.65
1979	51,093	100.00	932	1.82	4,893	9.58	8,096	15.85	37,172	72.75
1980	51,091	100.00	965	1.89	5,144	10.07	8,070	15.80	36,912	72.25
1981	49,301	100.00	936	1.90	4,906	9.95	7,837	15.90	35,622	72.25
1982	43,945	100.00	883	2.01	4,453	10.13	7,331	16.68	31,278	71.18

SOURCES: Deaths: 1962-74, estimated by NHTSA from data supplied by the National Center for Health Statistics, H.H.S., and State Accident Summaries (Adjusted to 30-Day Deaths)
1975-82 from Fatal Accident Reporting System (FARS), NHTSA.

NOTES: *Motor vehicle involvement only.
**"Others" includes, primarily, drivers and passengers in motor vehicles other than motorcycles and motorscooters. There are a few riders of animals, occupants of animal-drawn vehicles, occupants of street cars, unauthorized riders, etc., also in the category.

Table A-17 Number and Population Death Rate of Motor Vehicle Traffic Fatalities by Type in the Accident, 1962–82

Year	Resident Pop. (100,000)	Total Deaths		Bicyclists*		Motorcyclists		Pedestrians*		Others**	
		Number	Rate***	Number	Rate***	Number	Rate***	Number	Rate***	Number	Rate***
1962	1857.71	38,980	20.98	550	0.29	810	0.44	7,320	3.94	30,300	16.31
1963	1884.83	41,723	22.14	580	0.31	940	0.50	7,430	3.94	32,773	17.39
1964	1911.41	45,645	23.88	690	0.36	1,240	0.65	8,100	4.24	35,615	18.63
1965	1935.26	47,089	24.33	690	0.36	1,650	0.85	7,990	4.13	36,759	18.99
1966	1955.76	50,894	26.02	730	0.37	2,230	1.14	8,530	4.36	39,404	20.15
1967	1974.57	50,724	25.69	750	0.38	2,170	1.10	8,460	4.28	39,344	19.93
1968	1993.99	52,725	26.44	700	0.35	1,940	0.97	8,800	4.41	41,285	20.71
1969	2013.85	53,543	26.59	710	0.35	1,870	0.93	8,710	4.33	42,253	20.98
1970	2039.84	52,627	25.80	760	0.37	2,280	1.12	8,950	4.39	40,637	19.92
1971	2068.27	52,542	25.40	860	0.42	2,650	1.28	9,100	4.40	39,932	19.31
1972	2092.84	54,589	26.08	990	0.47	3,030	1.45	9,200	4.40	41,369	19.77
1973	2113.57	54,052	25.57	1,070	0.51	3,230	1.53	8,930	4.23	40,822	19.31
1974	2133.42	45,196	21.18	1,040	0.49	3,370	1.58	7,540	3.53	33,246	15.58
1975	2154.65	44,525	20.66	1,003	0.47	3,189	1.48	7,516	3.49	32,817	15.23
1976	2175.63	45,523	20.92	914	0.42	3,312	1.52	7,427	3.41	33,870	15.57
1977	2197.60	47,878	21.79	922	0.42	4,104	1.87	7,732	3.52	35,120	15.98
1978	2220.95	50,331	22.66	892	0.40	4,577	2.06	7,795	3.51	37,067	16.69
1979	2245.67	51,093	22.75	932	0.42	4,893	2.18	8,096	3.61	37,172	16.55
1980	2271.58	51,091	22.49	965	0.42	5,144	2.26	8,070	3.55	36,912	16.25
1981	2293.07	49,301	21.50	936	0.41	4,906	2.14	7,837	3.42	35,622	15.53
1982	2315.34	43,945	18.98	883	0.38	4,453	1.92	7,331	3.17	31,278	13.51

SOURCES: Population, U.S. Bureau of the Census. (July 1 estimate)
Deaths: 1962-74, estimated by NHTSA from data supplied by the National Center for Health Statistics, H.H.S., and State Accident Summaries (Adjusted to 30-Day Deaths)
1975-82 from Fatal Accident Reporting System (FARS), NHTSA.

NOTES: *Motor vehicle involvement only.
**"Others" includes, primarily, drivers and passengers in motor vehicles other than motorcycles and motorscooters. There are a few riders of animals, occupants of animal-drawn vehicles, occupants of street cars, unauthorized riders, etc., also in the category.
***Deaths per 100,000 resident population.

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Table A-18 **Leading Causes of Death by Age and Sex, United States, 1980**

Age Group	Cause of Death	Total			Male			Female		
		Rank	Deaths	%	Rank	Deaths	%	Rank	Deaths	%
All Ages	Diseases of the Heart	1	762,274	38.2	1	406,481	37.7	1	355,793	38.9
	Malignant Neoplasms (Cancer)	2	416,973	20.9	2	226,237	21.0	2	190,736	20.8
	Cerebrovascular Disease (Stroke)	3	170,403	8.5	3	70,072	6.5	3	100,331	11.0
	Motor Vehicle Accidents	4	53,476	2.7	4	39,097	3.6	8	14,379	1.6
	Pneumonia	5	51,964	2.6	6	26,614	2.5	4	25,350	2.8
	Nontransport Accidents	6	49,014	2.5	5	32,323	3.0	7	16,691	1.8
	Diabetes Mellitus	8	34,872	1.7	12	14,337	1.3	5	20,535	2.2
	Atherosclerosis	10	29,457	1.5	14	11,606	1.1	6	17,851	1.9
Under 1	Certain Conditions Originating in the Perinatal Period	1	22,778	49.3	1	13,002	49.5	1	9,776	49.0
	Congenital Anomalies	2	9,245	20.0	2	4,982	19.0	2	4,263	21.4
	Symptoms, Signs and Ill-Defined Conditions	3	6,154	13.3	3	3,625	13.8	3	2,529	12.7
	Pneumonia	4	1,018	2.2	4	603	2.3	4	415	2.1
	Nontransport Accidents	5	987	2.1	5	590	2.2	6	397	2.0
	Diseases of the Heart	6	956	2.1	6	549	2.1	5	407	2.0
	Motor Vehicle Accidents	12	279	0.6	12	157	0.6	11	122	0.6
1-4	Nontransport Accidents	1	2,097	25.5	1	1,305	27.3	1	792	23.0
	Motor Vehicle Accidents	2	1,180	14.3	2	671	14.0	2	509	14.8
	Congenital Anomalies	3	1,040	12.6	3	565	11.8	3	475	13.8
	Malignant Neoplasms (Cancer)	4	577	7.0	4	347	7.3	4	230	6.7
	Other Diseases of Nervous System and Sense Organs	5	447	5.4	5	238	5.0	5	209	6.1
	Diseases of the Heart	6	339	4.1	6	184	3.8	6	155	4.5
5-9	Motor Vehicle Accidents	1	1,285	25.1	1	804	26.7	1	481	22.8
	Nontransport Accidents	2	1,113	21.7	2	745	24.7	2	368	17.5
	Malignant Neoplasms (Cancer)	3	785	15.3	3	472	15.7	3	313	14.9
	Congenital Anomalies	4	309	6.0	4	169	5.6	4	140	6.6
	Other Diseases of Nervous System and Other Sense Organs	5	286	5.6	5	154	5.1	5	132	6.3
	Other Metabolic and Immunity Disorders	6	166	3.2	7	70	2.3	6	96	4.6
	Homicide and Legal Intervention	7	153	3.0	6	76	2.5	7	77	3.7
10-14	Motor Vehicle Accidents	1	1,476	26.1	1	978	27.1	1	498	24.2
	Nontransport Accidents	2	1,187	20.9	2	907	25.2	3	280	13.6
	Malignant Neoplasms (Cancer)	3	733	12.9	3	426	11.8	2	307	14.9
	Other Diseases of Nervous System and Sense Organs	4	290	5.1	4	165	4.6	5	125	6.1
	Congenital Anomalies	5	267	4.7	6	137	3.9	4	130	6.3
	Homicide and Legal Intervention	6	262	4.6	5	145	4.0	6	117	5.7
15-19	Motor Vehicle Accidents	1	9,129	43.8	1	6,752	44.1	1	2,377	42.8
	Nontransport Accidents	2	2,859	13.7	2	2,409	15.8	4	450	8.1
	Homicide and Legal Intervention	3	2,260	10.8	3	1,748	11.4	2	512	9.2
	Suicide	4	1,802	8.6	4	1,486	9.7	5	316	5.7
	Malignant Neoplasms (Cancer)	5	1,555	5.5	5	685	4.5	3	470	8.5
	Diseases of the Heart	6	494	2.4	6	307	2.0	6	187	3.4
20-24	Motor Vehicle Accidents	1	9,998	35.1	1	7,975	36.5	1	2,023	30.5
	Homicide and Legal Intervention	2	4,418	15.5	2	3,536	16.2	2	882	13.3
	Nontransport Accidents	3	3,527	12.4	3	3,019	13.8	5	508	7.7
	Suicide	4	3,448	12.1	4	2,856	13.1	3	592	8.9
	Malignant Neoplasms (Cancer)	5	1,552	5.4	5	996	4.6	4	556	8.4
	Diseases of the Heart	6	742	2.6	6	484	2.2	6	258	3.9
25-29	Motor Vehicle Accidents	1	6,445	24.9	1	5,107	26.6	1	1,338	19.9
	Homicide and Legal Intervention	2	4,135	16.0	2	3,375	17.6	3	760	11.3
	Suicide	3	3,239	12.5	3	2,599	13.6	4	640	9.5
	Nontransport Accidents	4	3,053	11.8	4	2,588	13.5	5	456	6.9
	Malignant Neoplasms (Cancer)	5	2,058	7.9	5	1,108	5.8	2	950	14.1
	Diseases of the Heart	6	1,108	4.3	6	716	3.7	6	392	5.8

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Table A-18 **Leading Causes of Death by Age and Sex, United States, 1980**

Age Group	Cause of Death	Total			Male			Female		
		Rank	Deaths	%	Rank	Deaths	%	Rank	Deaths	%
30-34	Motor Vehicle Accidents	1	4,412	17.9	1	3,464	20.3	2	948	12.6
	Homicide and Legal Intervention	2	3,159	12.8	2	2,617	15.3	5	542	7.2
	Malignant Neoplasms (Cancer)	3	3,056	12.4	6	1,378	8.1	1	1,678	22.3
	Suicide	4	2,694	10.9	3	2,010	11.8	3	684	9.1
	Nontransport Accidents	5	2,346	9.5	4	1,916	11.2	6	430	5.7
	Diseases of the Heart	6	1,985	8.1	5	1,382	8.1	4	603	8.0
35-39	Malignant Neoplasms (Cancer)	1	4,701	18.2	3	2,022	11.9	1	2,679	30.2
	Diseases of the Heart	2	3,882	15.1	1	2,927	17.3	2	955	10.8
	Motor Vehicle Accidents	3	2,980	11.6	2	2,267	13.4	3	713	8.0
	Homicide and Legal Intervention	4	2,256	8.7	4	1,811	10.7	6	445	5.0
	Suicide	5	2,155	8.4	5	1,577	9.3	4	578	6.5
	Nontransport Accidents	6	1,874	7.3	6	1,520	9.0	8	354	4.0
	Chronic Liver Disease and Cirrhosis	7	1,432	5.6	7	970	5.7	5	462	5.2
40-44	Malignant Neoplasms (Cancer)	1	7,814	23.8	2	3,533	16.9	1	4,281	35.7
	Diseases of the Heart	2	7,586	23.1	1	5,735	27.5	2	1,851	15.4
	Motor Vehicle Accidents	3	2,402	7.3	3	1,752	8.4	5	650	5.4
	Chronic Liver Disease and Cirrhosis	4	2,068	6.3	4	1,371	6.6	3	697	5.8
	Suicide	5	1,791	5.4	7	1,257	6.0	6	534	4.4
	Nontransport Accidents	6	1,744	5.3	5	1,347	6.4	7	397	3.3
	Homicide and Legal Intervention	7	1,630	5.0	6	1,327	6.4	8	303	2.5
	Cerebrovascular Disease (Stroke)	8	1,332	4.0	8	678	3.2	4	654	5.4
45-54	Diseases of the Heart	1	41,228	30.9	1	31,234	36.8	2	9,994	20.5
	Malignant Neoplasms (Cancer)	2	41,098	30.8	2	20,814	24.6	1	20,284	41.6
	Chronic Liver Disease and Cirrhosis	3	7,063	5.3	3	4,717	5.6	4	2,346	4.8
	Cerebrovascular Disease (Stroke)	4	5,768	4.3	6	3,009	3.5	3	2,759	5.7
	Motor Vehicle Accidents	5	4,270	3.2	5	3,061	3.6	5	1,209	2.5
	Nontransport Accidents	6	4,179	3.1	4	3,150	3.7	8	1,029	2.1
	Suicide	7	3,631	2.7	7	2,525	3.0	6	1,106	2.3
55-64	Diseases of the Heart	1	107,512	36.7	1	76,008	41.2	2	31,504	29.1
	Malignant Neoplasms (Cancer)	2	94,741	32.4	2	52,921	28.7	1	41,820	38.7
	Cerebrovascular Disease (Stroke)	3	14,190	4.8	3	7,605	4.1	3	6,585	6.1
	Chronic Liver Disease and Cirrhosis	4	9,049	3.1	4	5,986	3.2	4	3,063	2.8
	Diabetes Mellitus	5	5,793	2.0	7	2,754	1.5	5	3,039	2.8
	Other Chronic Obstructive Pulmonary Diseases	6	5,732	2.0	5	3,817	2.1	6	1,915	1.8
	Nontransport Accidents	7	5,166	1.8	6	3,652	2.0	7	1,514	1.4
	Motor Vehicle Accidents	9	3,816	1.3	8	2,594	1.4	9	1,222	1.1
65 +	Diseases of the Heart	1	596,107	44.4	1	286,782	43.5	1	309,325	45.2
	Malignant Neoplasms (Cancer)	2	258,561	19.3	2	141,452	21.5	2	117,109	17.1
	Cerebrovascular Disease (Stroke)	3	146,525	10.9	3	57,451	8.7	3	89,074	13.0
	Pneumonia	4	43,069	3.2	4	21,041	3.2	4	22,028	3.2
	Other Chronic Obstructive Pulmonary Diseases	5	28,366	2.1	5	20,105	3.1	8	8,261	1.2
	Atherosclerosis	6	28,089	2.1	6	10,719	1.6	5	17,370	2.5
	Diabetes Mellitus	7	25,226	1.9	7	9,565	1.5	6	15,661	2.3
	Motor Vehicle Accidents	20	5,804	0.4	17	3,515	0.5	24	2,289	0.3

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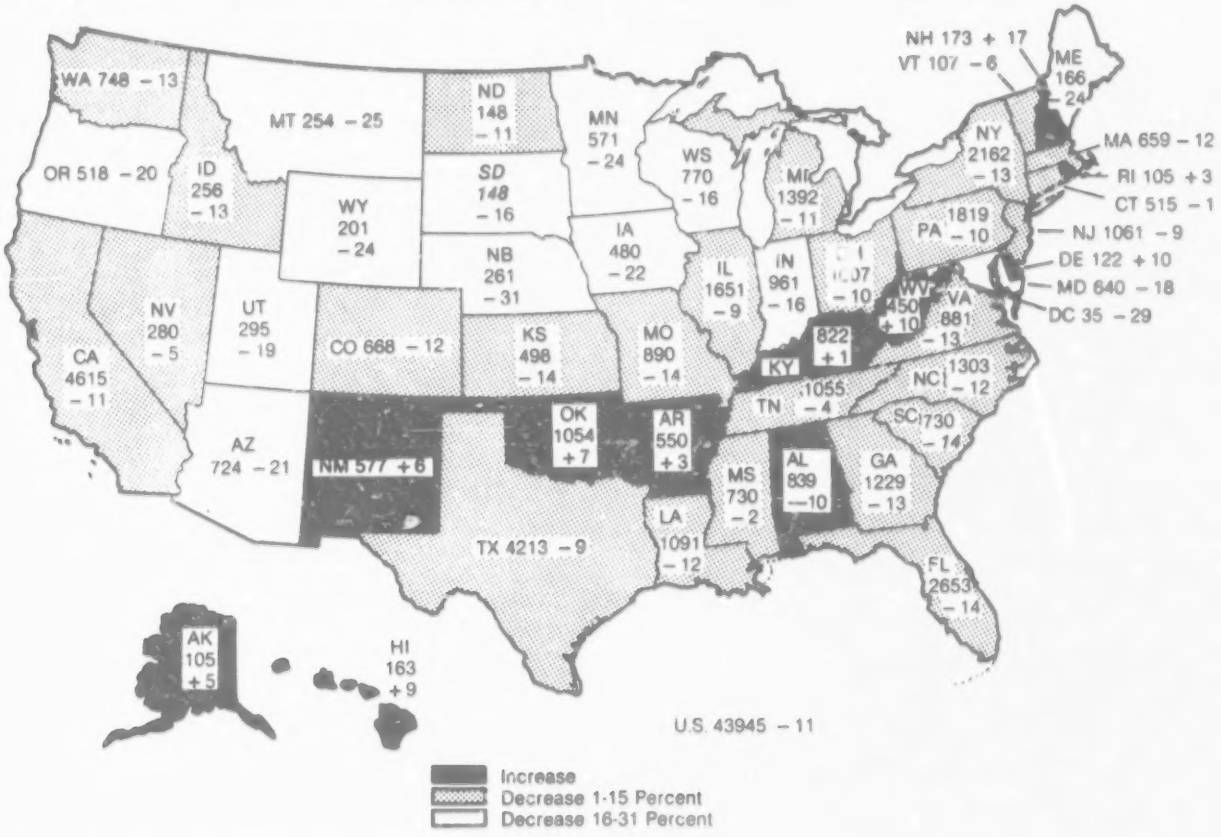
Figure A-1 **Motor Vehicle Traffic Fatalities by State, 1982, and Percent Change from 1981**



NOTE (1) Fatalities are from the Fatal Accident Reporting System (FARS), NHTSA
(2) In 1982, 41 of the States showed a decrease in traffic fatalities compared to 1981

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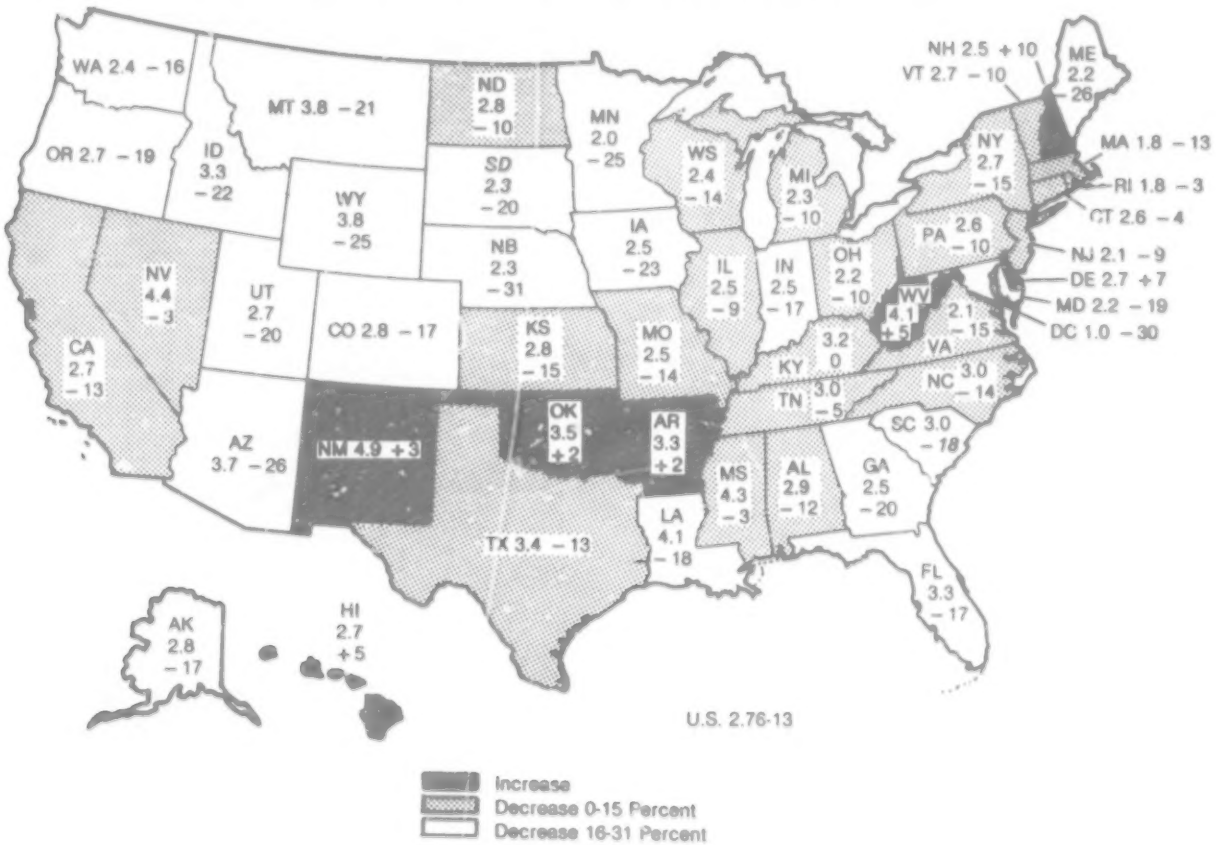
Figure A-2 **Motor Vehicle Traffic Death Rate, 1982, and Percent Change from 1981**



SOURCE: Fatalities — Fatal Accident Reporting System (FARS), NHTSA.
Vehicle mileage—Based on preliminary estimates from automatic traffic recorder data supplied to Federal Highway Administration.
Death Rate = deaths per 100,000 vehicle miles

NOTE: In 1982, 44 States showed a decrease in their vehicle mileage death rate.

Figure A-3 **Trends in Vehicle Mileage and Mileage Death Rate, 1962-82**

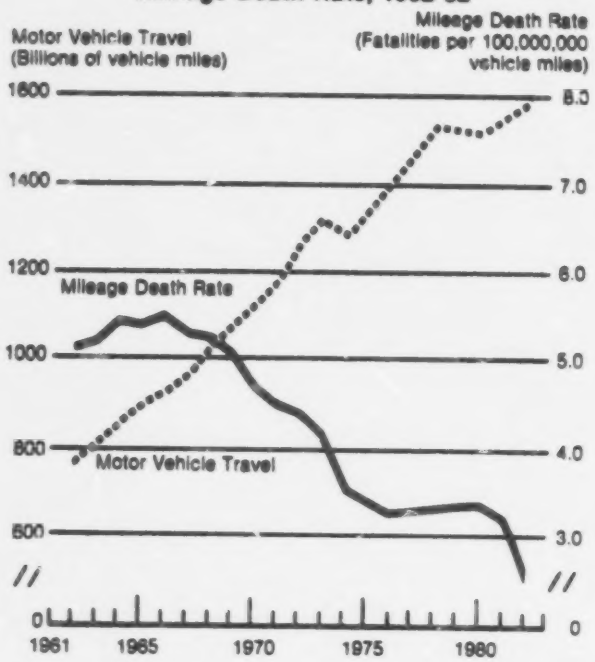
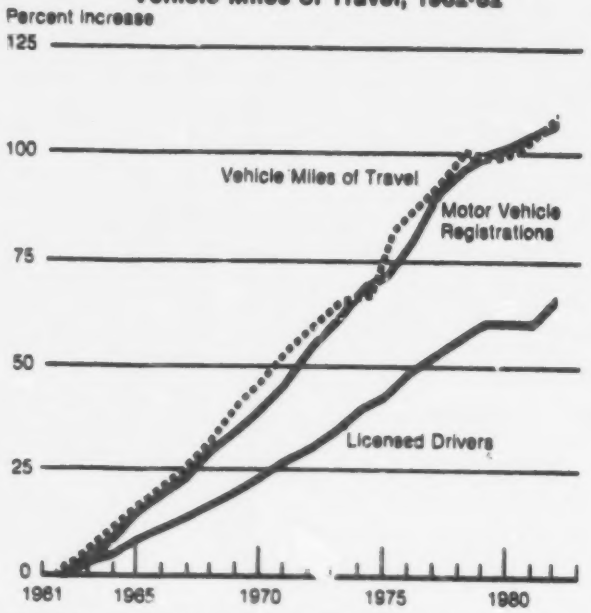
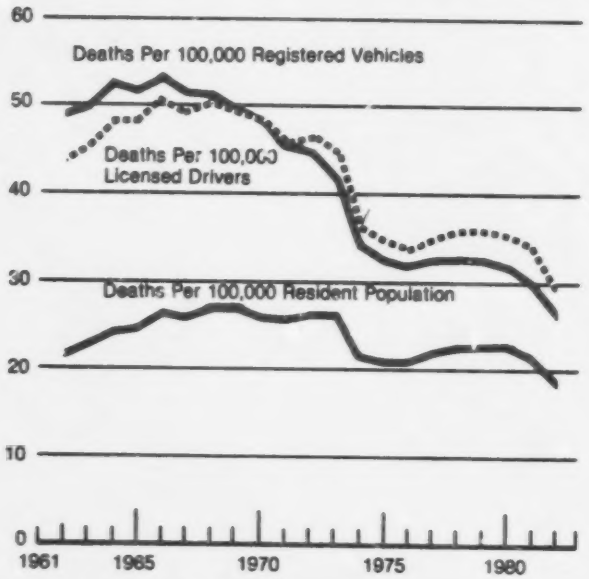


Figure A-4 **Trends in Motor Vehicle Registrations, Licensed Drivers and Vehicle Miles of Travel, 1962-82**



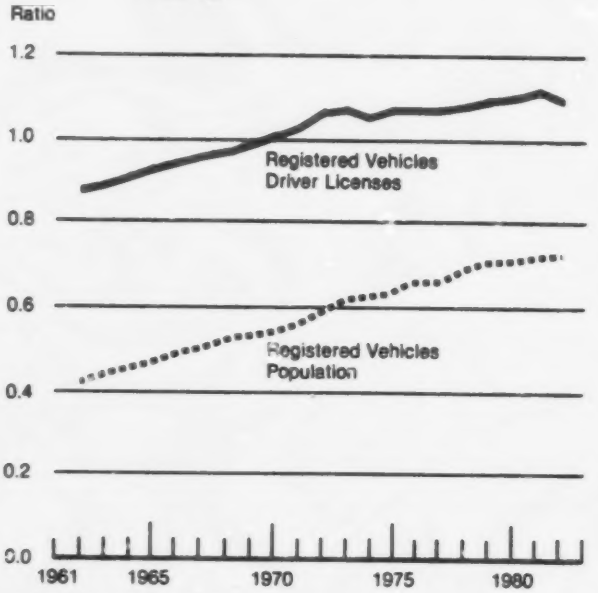
SOURCE: Federal Highway Administration, Highway Statistics Division

Figure A-5 **Trend in Motor Vehicle Death Rates, 1962-82**



SOURCES: Deaths: 1962-74, National Center for Health Statistics and State Accident Summaries (adjusted to 30 day traffic deaths); 1975-82 The Fatal Accident Reporting System (FARS), NHTSA.
Vehicle travel, registered vehicles, and licensed drivers, Federal Highway Administration, Highway Statistics Division
Population: Bureau of the Census.

Figure A-6 **Trend in Ratios of Registered Vehicles to Drivers and Population, 1962-82**



SOURCE: Registered Vehicles and Licensed Drivers: FHWA, Highway Statistics Division.
Population: Bureau of the Census.

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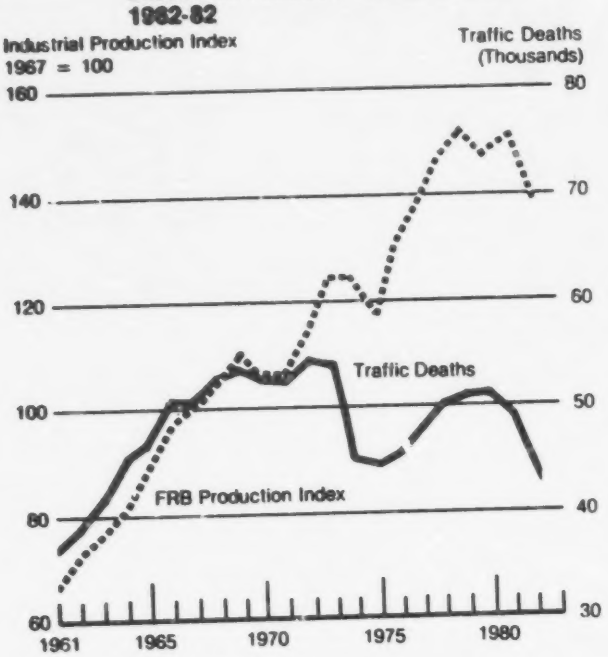
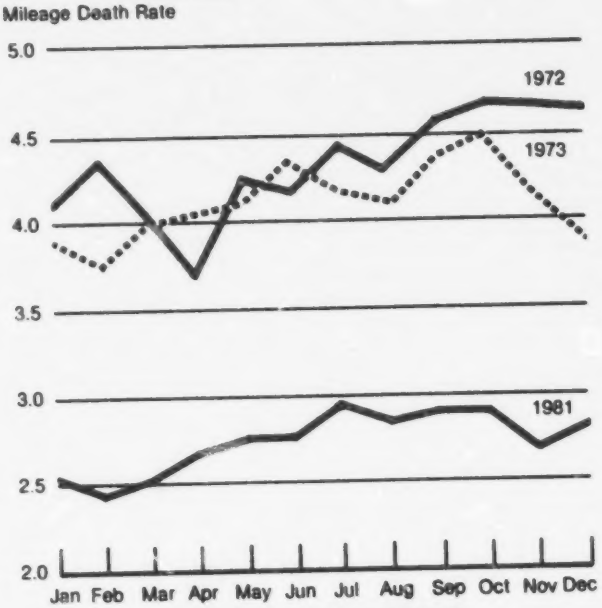
Figure A-7 Comparison of Traffic Deaths and Industrial Production Index, U.S. 1962-82



SOURCES: Federal Reserve Board.
Deaths: 1962-74, National Center for Health Statistics
1975-82, Fatal Accident Reporting System (FARS), NHTSA

NOTE: From 1962 to 1966 the annual changes in highway fatalities corresponded closely with changes in the Federal Reserve Board Industrial Production Index. Clearly both trends had many common causative factors. Beginning in 1967, however, the rate of increase in highway deaths has fallen [illegible] that of the industrial index, although similarities in the two trends are still apparent.

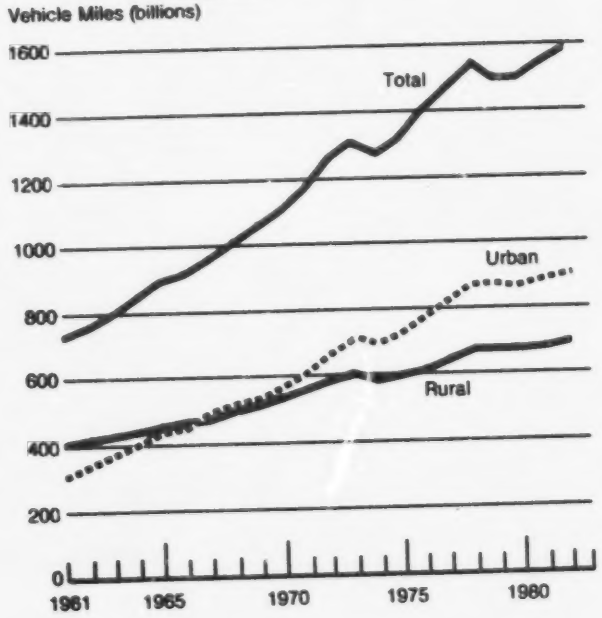
Figure A-8 Monthly Death Rates, for 1972, 1973, and 1982



SOURCE Mileage data supplied by Federal Highway Administration.

NOTE The graph for 1973, when compared to 1972, illustrates the general trend of annual reduction since the Highway Safety Act of 1966. The sharp drop that occurred at the end of 1973 and continued through 1980 also reflects the change in automobile use resulting from the energy crisis.

Figure A-9 Weekend-Weekday Contrast in Fatility Rates, 1982



SOURCE: Federal Highway Administration

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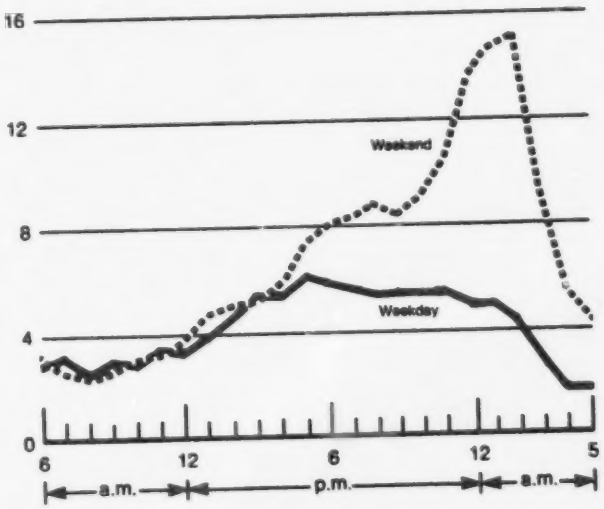
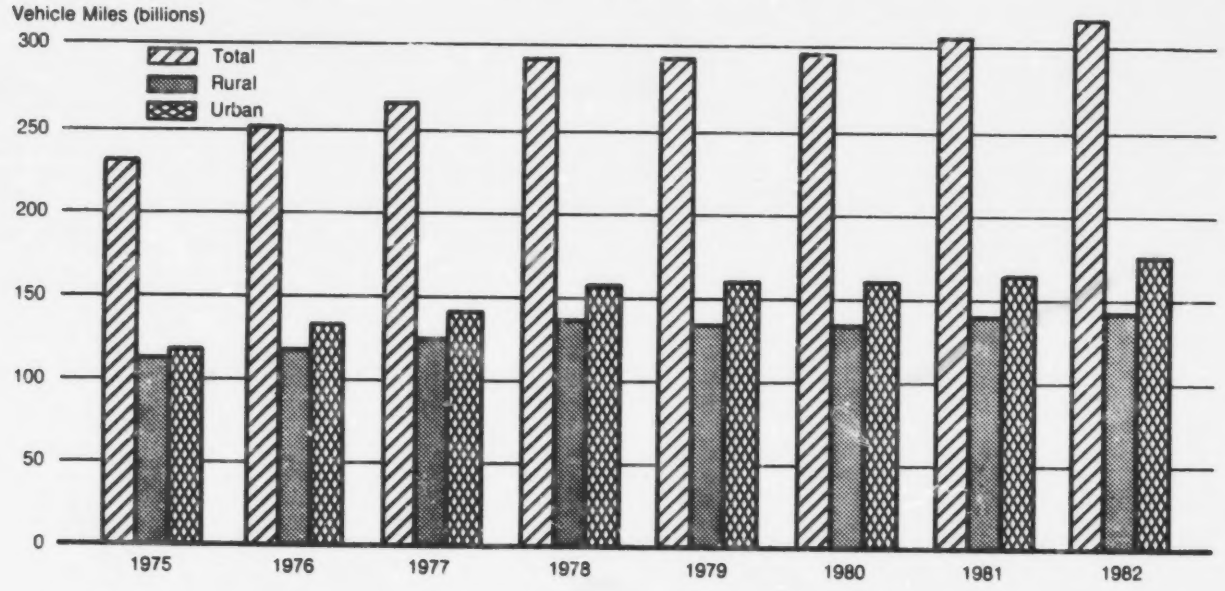
Figure A-10 Total Motor Vehicle Travel, 1982-82



SOURCES: Fatal Accident Reporting System (FARS), NHTSA.

NOTE: Weekend crashes (6 p.m. Friday—midnight Sunday) produce many more fatalities in the evening and early morning hours than do weekday crashes. This is primarily a result of increased recreational driving on weekend nights and associated increased use of alcohol.

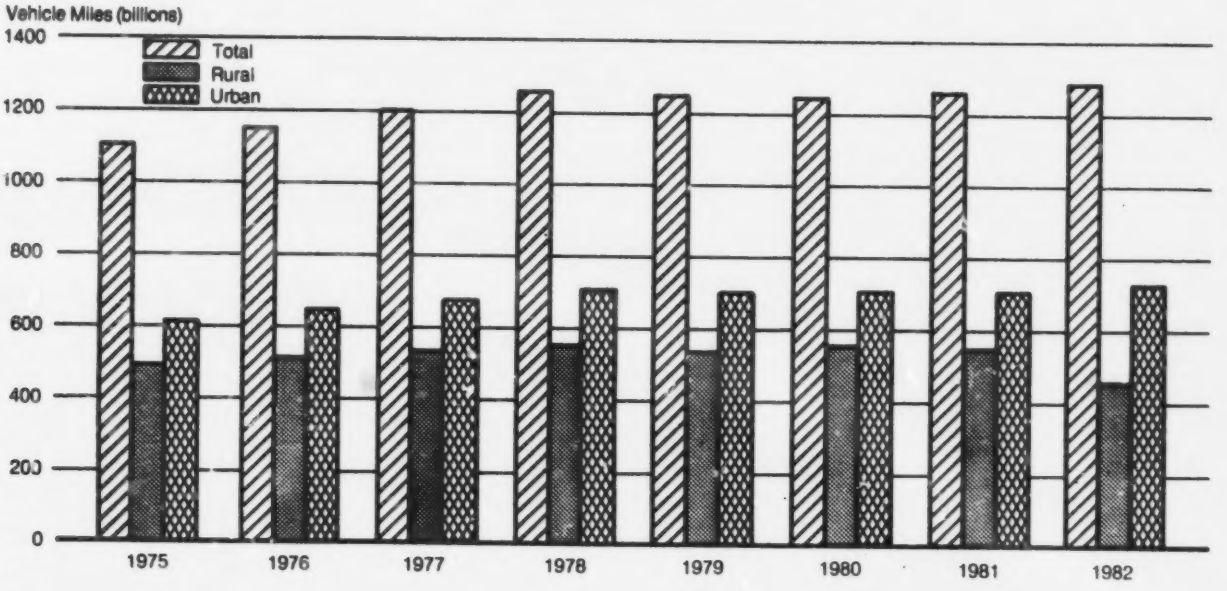
Figure A-11 **Motor Vehicle Travel on the Interstate Highway System, 1975-82**



SOURCE: Federal Highway Administration

NOTE: Interstate Highway System is synonymous with the Federal Highway Administration categories Interstate (Arterial) and Interstate (Final)

Figure A-12 **Motor Vehicle Travel on Non-Interstate Highway Systems, 1975-82**



SOURCE: Federal Highway Administration.

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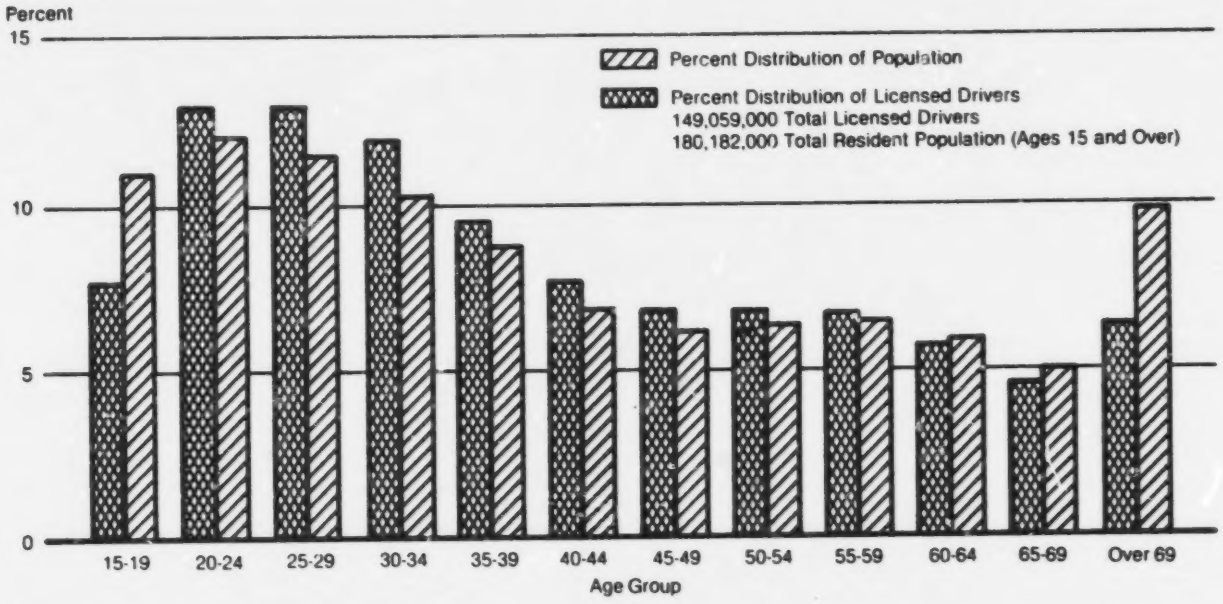
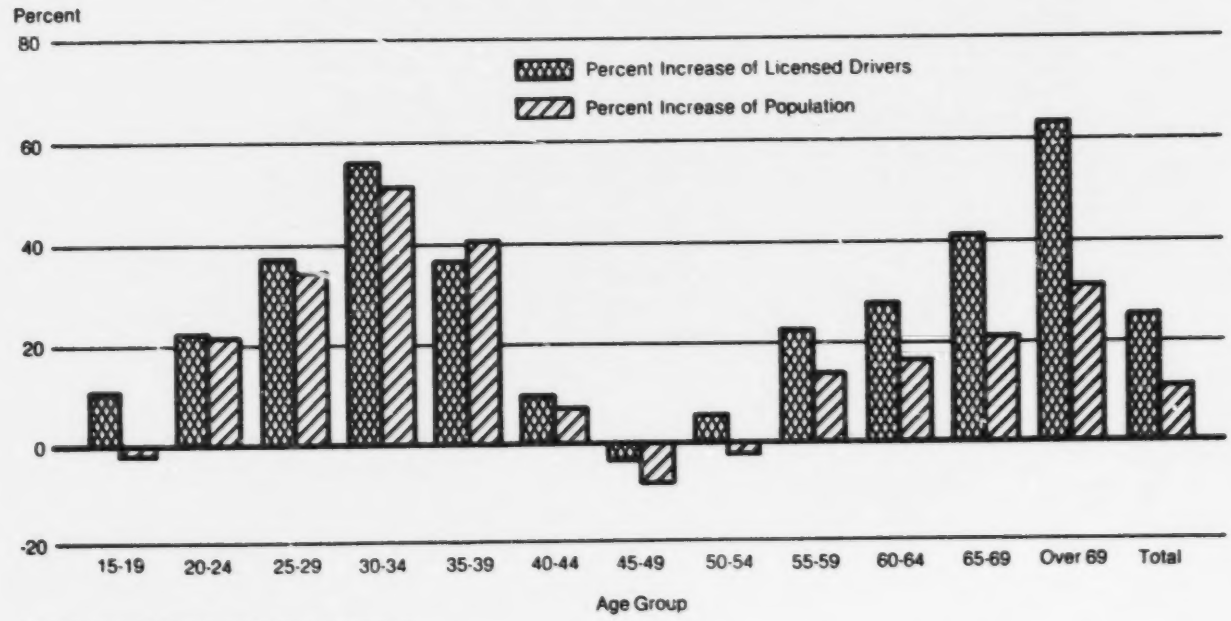
Figure A-13 **Licensed Drivers and Population by Age Group, 1982**



SOURCE: Licensed Drivers-Federal Highway Administration.
Population-Bureau of the Census.

Figure A-14 **Percent Increase in Licensed Drivers and Population by Age Group, 1972-82**



SOURCE: Licensed Drivers-Federal Highway Administration.
Population-Bureau of the Census.

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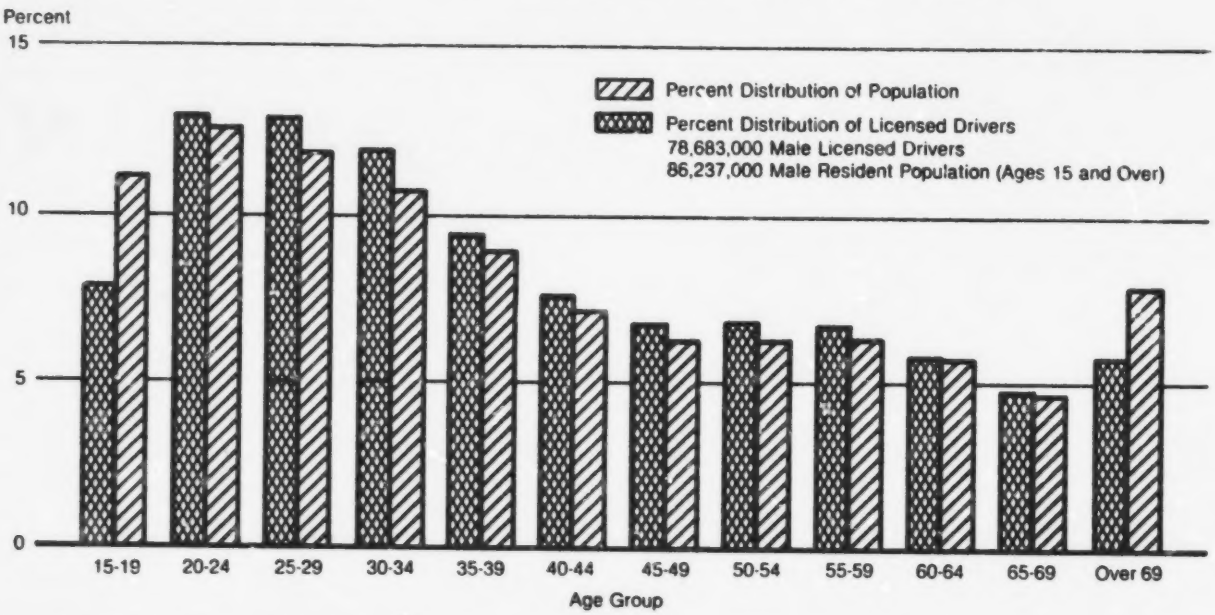
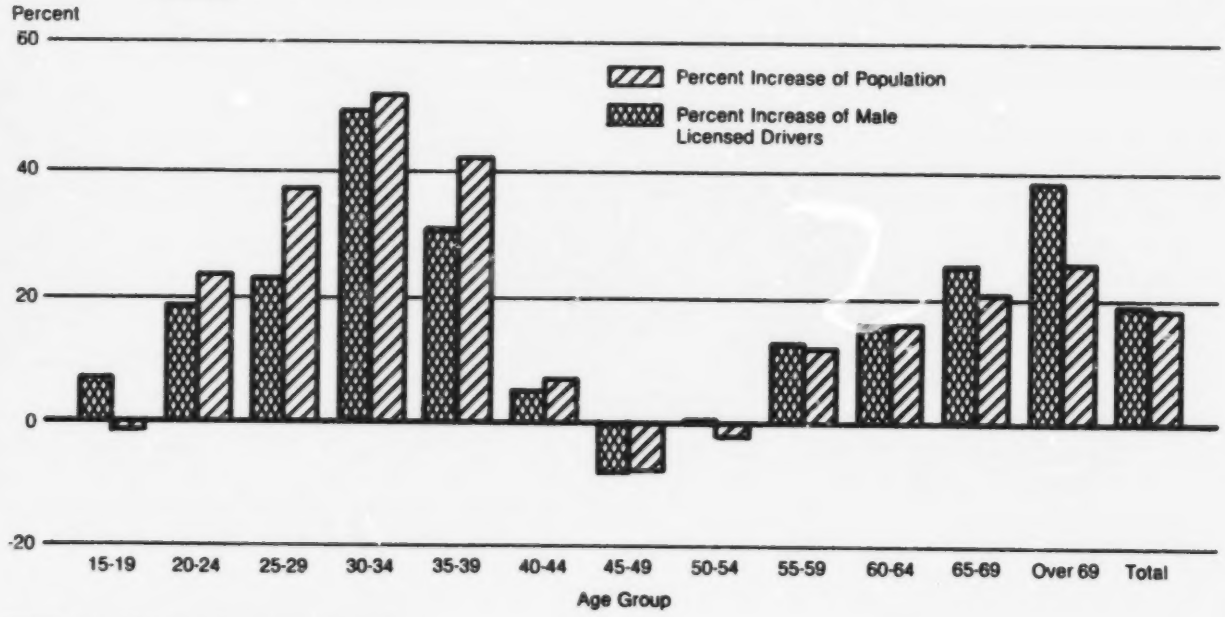
Figure A-15 **Distribution of Male Licensed Drivers and Population by Age Group 1982**



SOURCE: Licensed Drivers — Federal Highway Administration
Population — Bureau of the Census

Figure A-16 **Percent Increase in Male Licensed Drivers and Population by Age Group, 1972-82**



SOURCE: Licensed Drivers — Federal Highway Administration.
Population — Bureau of the Census.

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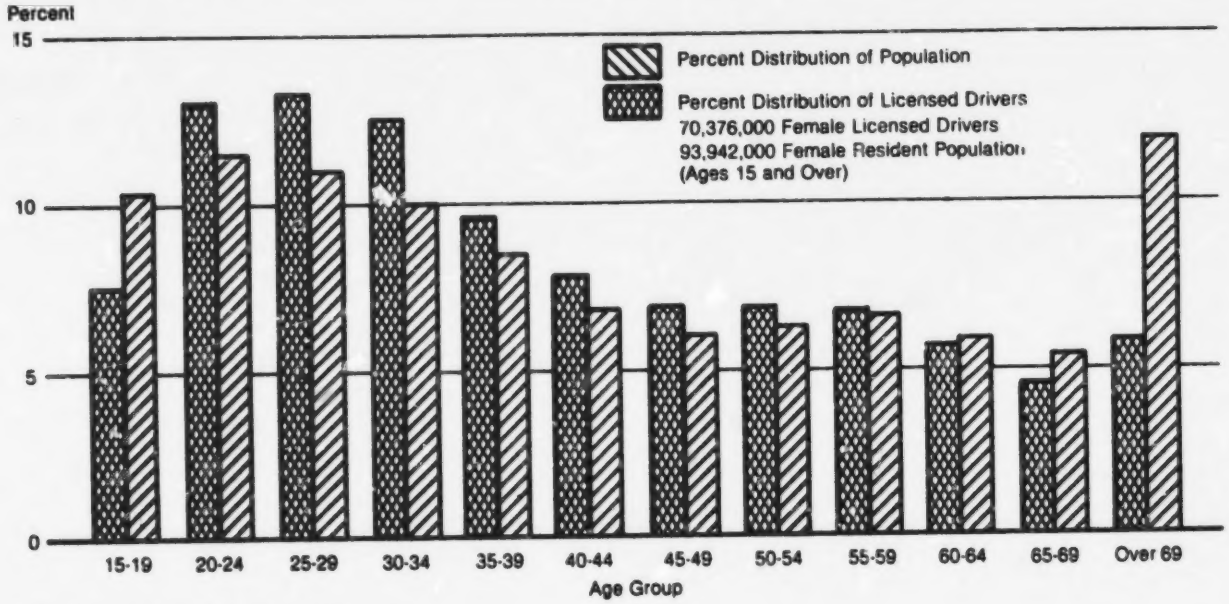
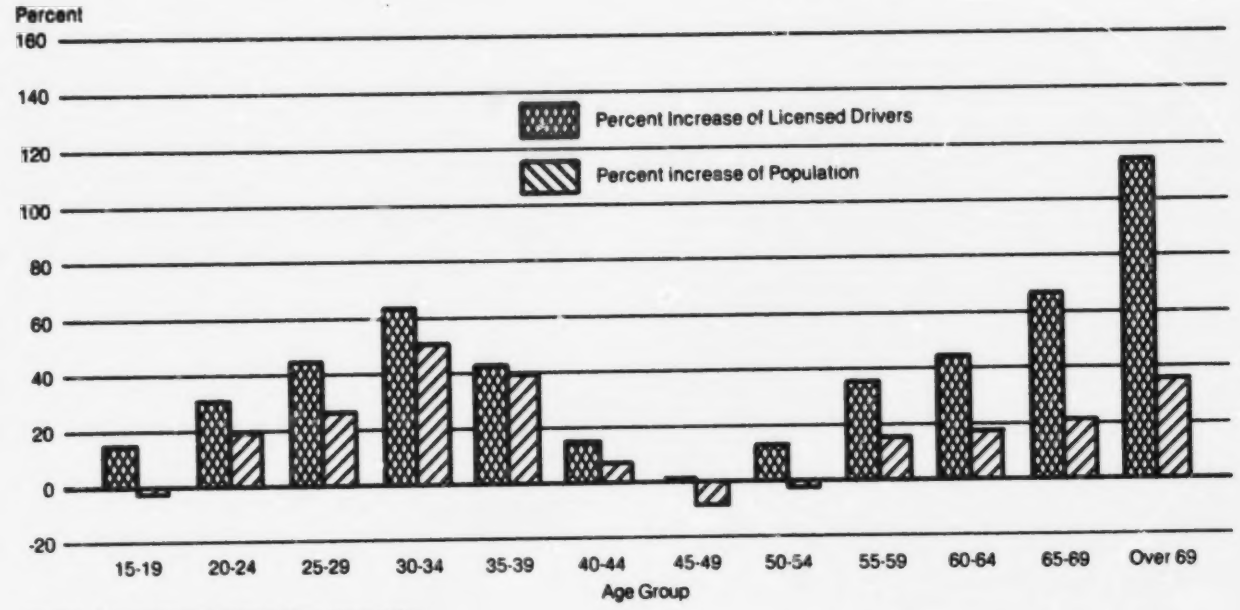
Figure A-17 **Distribution of Female Licensed Drivers and Population by Age Group, 1982**



SOURCE: Licensed Drivers-Federal Highway Administration
Population-Bureau of the Census

Figure A-18 **Percent Increase in Female Licensed Drivers and Population by Age Group, 1972-82**



SOURCE: Licensed Drivers-Federal Highway Administration.
Population-Bureau of the Census.

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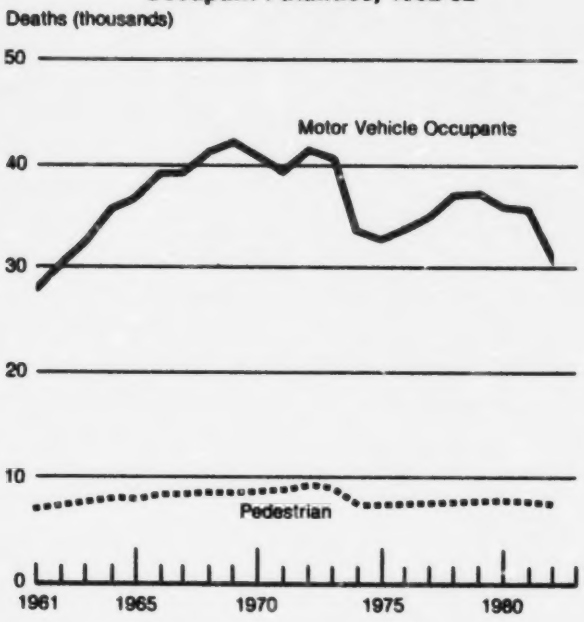
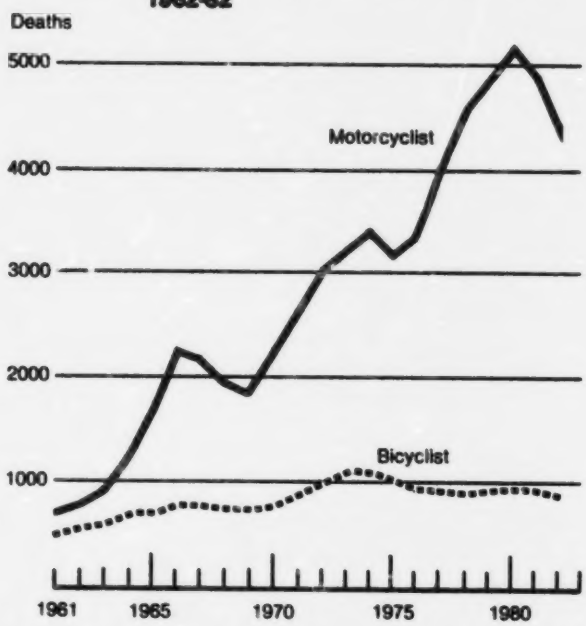
Figure A-19 **Pedestrian and Motor Vehicle Occupant Fatalities, 1962-82**



SOURCES: 1962-74, Estimated by NHTSA from data supplied by National Center for Health Statistics, HHS, and State Accident Summaries (adjusted to 30-Day deaths).
1975-82 Fatal Accident Reporting System (FARS), NHTSA

Figure A-20 **Motorcycle and Bicycle Fatalities, 1962-82**



SOURCES: 1962-74, Estimated by NHTSA from data supplied by National Center for Health Statistics, HHS, and State Accident Summaries (adjusted to 30-Day deaths).
1975-82 Fatal Accident Reporting System (FARS), NHTSA

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APPENDIX B
Funding Tables

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Table B-1 Summary of Authorizations and Appropriations, Fiscal Years 1973-83 (Millions of Dollars)

	FY 73	FY 74	FY 75	FY 76	FY 77	FY 78	FY 79	FY 80	FY 81	FY 82	FY 83
Operations and Research Appropriation:											
Traffic and Motor Vehicle Safety Programs											
Authorization[1]	52.7	30.5[2]	55.0	60.0	60.0	60.0	43.6[2]	45.2[2]	49.4[2]	43.4[2]	51.4[3]
Appropriation	33.0	30.5	35.1	38.0	41.8	42.4	43.6	45.2	49.4	43.4	51.4
Automotive Fuel Economy[4] and Consumer Information											
Authorization	23.0	37.0	48.0	7.5	13.9	16.7	12.4[2]	12.4[2]	9.7[2]	7.7[2]	6.9[3]
Appropriation	—	15.0	7.7	1.0	3.6	10.2	12.4	12.4	9.7	7.7	6.9
Highway Safety Research and Development Programs											
Authorization[5]	115.0	42.5	55.0	65.0	40.0	50.0	50.0	50.0	50.0	31.0	31.0
Appropriation	44.2	39.4	28.1	29.0	27.1	26.8	26.1	26.1	27.0	23.8	23.3
Compliance Test Facility											
Authorization[1]											
Appropriation		9.0									
Total Operations and Research Appropriation											
Authorization	190.7	110.0	158.0	132.5	113.9	126.7	106.0	107.6	109.1	82.1	89.3
Appropriation	77.2	93.9	70.9	68.0	72.5	79.4	82.1	83.7	86.1	74.9	81.6
State and Community Highway Safety Program											
Authorization	100.0	137.5	173.0	206.5	137.0	152.0	177.5	177.5	202.5	102.5	101.5
(Incentives)		(37.5)	(48.0)	(56.5)	(15.0)	(15.0)					
National 55 MPH Speed Limit											
Authorization							50.0	67.5	67.5	6	6
(Incentives)								(17.5)	(17.5)		
Innovative Grants											
Authorization								5.0	10.0		
FHWA Authorization	30.0	25.0	30.0	35.0	25.0	25.0	25.0	25.0	25.0	10.0	10.0
Total State and Community Highway Safety Program	130.0	162.5	203.0	241.5	162.0	177.0	202.5	275.0	305.0	112.5	111.5
State and Community Highway Safety Program											
Obligations:											
NHTSA	82.1	66.8	86.1	100.9	129.0	172.0	172.0	197.5	181.7	104.7	78.5
(Incentives)		(.3)	(13.1)	(13.2)	(15.0)	(15.0)					
(55 MPH)								(20.0)	(25.0)		
(Transportation Systems Management)									(2.8)	(7.2)	
Innovative Grants (Schoolbus Driver) Training)								(2.5)	(1.0) (2.5)	(5.0)	(1.5)
FHWA	12.9	13.2	14.7	19.1	21.0	28.0	28.0	28.0	28.0	10.0	
Total Obligations	95.0	80.0	100.8	120.0	150.0	200.0	200.0	225.5	209.7	114.7	78.5

[1] Authorized under the National Traffic and Motor Vehicle Safety Act
[2] Authorization obtained from the Appropriation Act during these years.
[3] Proposed legislation.
[4] Authorized under the Motor Vehicle Information and Cost Savings Act
[5] Authorized under the Highway Safety Act
[6] Twenty percent of the 1982 and 1983 authorizations for Section 402 grants must be obligated for enforcement of the National Maximum Speed Limit.

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Table B-2 History of NHTSA Personnel Strengths (Full-time Permanent Positions, Fiscal Years 1973-83

	FY 1973			FY 1974			FY 1975			FY 1976			FY 1977			FY 1978			FY 1979			FY 1980			FY 1981			FY 1982			FY 1983		
	President's Budget	Appropriated	Actual Year End	President's Budget	Appropriated	Actual Year End	President's Budget	Appropriated	Actual Year End	President's Budget	Appropriated	Actual Year End	President's Budget	Appropriated	Actual Year End	President's Budget	Appropriated	Actual Year End	President's Budget	Appropriated	Actual Year End	President's Budget	Appropriated	Actual Year End	President's Budget	Appropriated	Actual Year End	President's Budget (Amended)	Appropriated	Actual Year End	President's Budget	Appropriated	Projected Year End[1]
Program Direction & Coordination	96	94	83	94	94	80	93	93	88	97	97	95	97	104	99	107	104	99	109	109	107	109	109	103	105	105	99	98	98	88	98	91	86
Motor Vehicle Programs	239	225	165	225	225	148	225	225	155	197	197	157	202	202	163	196	183	144	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rulemaking Programs																			55	55	52	58	58	57	49	49	49	47	53	49	53	42	39
Enforcement Programs																			88	88	83	92	92	77	90	90	82	84	81	71	81	81	74
Highway Safety Programs	110	109	107	119	109	122	124	124	134	134	134	131	134	136	131	131	131	126	129	129	121	129	129	113	115	115	106	80	82	77	82	79	75
Research and Analysis	185	178	164	178	178	149	166	166	150	183	183	165	180	185	169	183	183	173	195	195	184	188	188	171	172	172	162	152	150	128	150	131	123
Staff & Administrative Support	116	119	114	119	119	112	124	124	119	124	124	117	124	126	117	125	125	113	122	122	114	122	122	112	111	111	98	102	102	91	102	88	86
Automotive Fuel Economy & Consumer Information				40	40	36	38	33	21	20	30	38	25	51	21	61[2]	61[2]	40[2]	61[2]	61[2]	58[2]	61	61	61	50	50	44	43	37	33	37	25	23
Subtotal	746	725	633	765	765	647	765	765	607	765	765	700	762	802	705	803	787	695	759	759	719	759	759	696	692	692	640	606	603	537	603	537	506
Regional Offices	119	116	114	116	116	114	116	118	117	116	116	113	116	116	113	115	115	110	115	115	109	115	115	111	105	105	103	80	83	82	83	80	80
Grand Total	865	841	747	881	881	761	881	881	784	881	881	813	878	918	818	918	902	805	874	874	828	874	874	805	797	797	743	686	686	619	686	617	586

[1] Reflects reductions initiated subsequent to budget submission
[2] Includes Office of Automotive Fuel Economy

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APPENDIX C

Publications of the National Highway Traffic Safety Administration

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NOTE

This list comprises National Highway Traffic Safety Administration publications issued during 1982. Titles are arranged alphabetically and may be obtained from the General Services Division, Room 4423, 400 7th Street, S.W. Washington, D.C. 20590. Telephone (202) 426-0874.

1. *Acts Adminstered by NHTSA.* DOT-HS-806 161
2. *Alcohol and Highway Safety. April 1982.* DOT-HS-806 129
3. *Alcohol and Highway Safety Laws: A National Overview.* DOT-HS-806 126
4. *Automotive Fuel Economy Programs. Sixth Annual Report.* DOT-HS-806 120
5. *Cost of Automobile Safety Regulations. March 1982 Preliminary Report.* DOT-HS-806 166
6. *Driver and Pedestrian Technology FY 1980-1981. February 1982.* DOT-HS-806 160
7. *Factors Influencing the Risk of Injury in Passenger Car and Other Vehicle Collisions with Truck and Truck Rear End.* DOT-HS-806 067
8. *Final Regulatory Impact Analysis. Part 581, Bumper Standard.* DOT-HS-806 174
9. *Get-It-Together. June 1982.* DOT-HS-806 254
10. *Impact Analysis of the Raised Legal Drinking Age in Illinois. December 1981.* DOT-HS-806 168
11. *Meet the Teacher, "Willie Whistle". September 1982.* DOT-HS-806 183
12. *Model Administration Rule to Support Uniform Vehicle Code.* DOT-HS-806 305
13. *NASS Data Collection, Coding and Editing Manuals. 1982 Continuous Sampling System, Version 5.* DOT-HS-806 066
14. *National Project Reporting System. Annual Report.* DOT-HS-806 109
15. *National Safety Belt Usage Conference November 28-30, 1973.* DOT-HS-806 239
16. *1981 FARS Report. August 1981.* DOT-HS-806 251
17. *Regulatory Reform: The Review Process.* DOT-HS-806 159
18. *Rollover and Injury on the NCSS File. 1978.* DOT-HS-806 185
19. *Report on Traffic Accidents 1978-1980.* DOT-HS-806 176
20. *Report on Traffic Accidents and Injuries for 1979-1980. February 1982.* DOT-HS-806 169
21. *Safety Belt—A History Lesson for Adults.* DOT-HS-806 175
22. *Tire Grading System Information.* DOT-HS-806 091
23. *Uncle Sam Needs the Boy Scouts to Help America Get It Together. May 1982.* DOT-HS-806 167
24. *Vehicle Aggressiveness and Compatibility. February/March 1982.* DOT-HS-806 180
25. *Vehicle Aggressiveness and Compatibility. December 1981/January 1982.* DOT-HS-806 173

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APPENDIX D

Current Research Grants and Contracts

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MAJOR RESEARCH PROJECTS PERFORMED FOR
NHTSA UNDER CONTRACTS WHICH UTILIZED FY 1982 FUNDS

CONTRACT NUMBER CONTRACTOR	TITLE	START FINISH	PRE- FY 80	FY 80	FY 81	FY 82
ADP 552 TYMSHARE, INC.	TYMSHARE DATA PROCESSING SERVICES	12 MON		0.	0.	0. 10000.
ADP 512 MCDONNELL DOUGLAS (MCAUTO)	FY82 OBLIGATION TO MCDONNELL DOUGLAS (MCAUTO)			0.	0.	0. 50000.
ADP 517	IN-HOUSE COMPUTER TIME			0.	0.	0. 45000
ADP 522 ADP NETWORK SERVICES, INC.	ADP COMPUTER TIME			0.	0.	0. 152200.
ADP 531 NATIONAL INSTITUTE OF HEALTH	FY82 OBLIGATION TO NIH			0.	0	0. 79675.
ADP 534	HARDWARE-SOFTWARE (MULTIPLE) PURCHASES			0.	0.	0. 19837.
ADP 538 TYMSHARE, INC.	COMPUTER TIME DOMS	02/12/82 10/12/82		0.	0.	0. 18000.
ADP 539 NHTSA-OFFICE OF MANAGEMENT SERVICES	OCCUPANT KINEMATIC STUDY FRONTAL IMPACT			0.	0.	0. 10000
ADP 551 CONTROL DATA CORPORATION	COMPUTER SERVICES SUPPORT			0.	0.	0. 10000.
ADP 554 NHTSA-OFFICE OF MANAGEMENT SERVICES	DATA PROCESSING AND SOFTWARE SUPPORT (MCAUTO)			0.	0.	0. 10000.
ADP VARIOUS	ADP SUPPORT			0.	0.	0. 75000
ADP-82-513 INFORMATICS, INC.	FY82 OBLIGATION TO INFORMATIC, INC.			0.	0.	0. 2049253.
ADP-82-556 APPLIED PHYSICS LABORATORY, JOHN HOPKINS	IHMP USE AT APL	03/31/83		0.	0.	0. 13000.
ADP-82-557 NATIONAL INSTITUTE OF HEALTH	DATA PROCESSING ACCOUNT			0.	0.	0. 15000.

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MAJOR RESEARCH PROJECTS PERFORMED FOR
NHTSA UNDER CONTRACTS WHICH UTILIZED FY 1982 FUNDS

CONTRACT NUMBER CONTRACTOR	TITLE	START FINISH	PRE- FY 80	FY 80	FY 81	FY 82
ADP-82531 NATIONAL INSTITUTE OF HEALTH	ADP SUPPORT (NATIONAL INSTITUTE OF HEALTH)		0.	0.	0.	50000.
ADP82-513 INFORMATICS, INC.	ADP SUPPORT (INFORMATICS)		0.	0.	0.	200000
DOT-HS-5-01160 CALIFORNIA UNIV OF SOUTHERN	MOTORCYCLE AND ACCIDENT FACTORS AND IDENTIFICATION OF COUNTERMEASURES	06/23/75 02/28/82	801286.	0.	0	50000
DOT-HS-5-01232 WAYNE STATE UNIV	KINESIOLOGY OF THE HUMAN SHOULDER AND SPINE	06/30/75 06/15/82	603648.	12050.	0.	13000.
DOT-HS-6-01390 CALSPAN FIELD SERVICES, INC.	NATIONAL CRASH SEVERITY STUDY TEAM CONTRACT	07/17/76 07/01/81	1020928.	10000.	0	22033.
DOT-HS-6-01393 MICHIGAN UNIV OF	NATIONAL CRASH SEVERITY STUDY	07/16/76 08/18/81	862830.	55645.	22000.	14000.
DOT-HS-6-01442 CALSPAN CORP	NATIONAL CRASH SEVERITY STUDY QUALITY CONTROL	05/20/76 02/15/82	447025.	135258.	41938.	24432.
DOT-HS-7-01697 US NAT BUREAU OF STANDARDS	STANDARDS DEVELOPMENT & QUALIFICATION TE FOR SPEED MEASURING DEVICES	08/24/77 03/24/84	201200.	37500.	0.	37500.
DOT-HS-8-01933 DYNAMIC SCIENCE, INC.	CRUSH AND DELTA-V MEASUREMENTS	05/03/78 05/31/82	347021.	3714.	0.	49366.
DOT-HS-8-02052 SYSTEMS TECHNOLOGY, INC	DRUNK DRIVER WARNING SYSTEM	09/30/78 02/28/83	449400.	42079.	5000	23994.
DOT-HS-9-0110 WILSON HILL ASSOCIATES	SYSTEM ANALYST PROGRAM WILSON HILL ASSOCIATES		0.	0.	0	20000.
DOT-HS-9-02079 TRANSPORTATION RESEARCH CENTER OF OHIO	LEASE OF FACILITIES AT TRC OF OHIO	11/16/78 09/01/82	0.	181087.	255280.	271756.
DOT-HS-9-02085 CALSPAN FIELD SERVICES, INC.	ROADWAY ALCOHOL COUNTERMEASURES DEVELOPMENT & TESTING	05/14/79 03/31/83	229448.	0.	63000.	121395.
DOT-HS-9-02177 DYNAMIC SCIENCE INC	COUNTERMEASURES FOR SIDE IMPACT STUDY	05/01/79 12/31/81	319878.	0.	98205.	39446.

MAJOR RESEARCH PROJECTS PERFORMED FOR
NHTSA UNDER CONTRACTS WHICH UTILIZED FY 1982 FUNDS

CONTRACT NUMBER CONTRACTOR	TITLE	START FINISH	PRE- FY 80	FY 80	FY 81	FY 82
DOT-HS-9-02191 NEW YORK DEPT OF MOTOR VEHICLES	MOTORIZED BICYCLES ACCIDENT PROBLEMS	07/17/79 01/31/82	120000.	0.	0.	19000.
DOT-HS-9-02231 MANAGEMENT ENGINEERS, INC.	MOTOR VEHICLE ACCIDENT INVESTIGATION RESEARCH STUDY- D.C. AREA	09/18/79 09/19/82	0	122000.	136000.	30369.
DOT-HS-9-02232 CALSPAN FIELD SERVICES, INC.	OPERATION OF ZONE CENTER B	09/27/79 10/15/82	100000.	344000.	410000.	544510
DOT-HS-9-02233 INDIANA UNIVERSITY	OPERATION OF ZONE CENTER A	09/28/79 10/15/82	100000.	44000.	320000.	433486.
DOT-HS-9-02273 APPROVED ENGINEERING TEST LAB	COLLISION RECONSTRUCTION	06/27/79 09/28/81	0.	55706.	34457.	53505
DOT-HS-9-02274 DYNAMIC SCIENCE, INC.	CRUSH AND DELTA-V MEASUREMENTS FOR CRASH-1982	09/27/79 11/01/81	0.	47937.	3970.	42766.
DOT-HS-9-02284 NATIONAL PUBLIC SERVICES RESEARCH INST.	SUPPLEMENTAL SAFETY PROGRAMS DEVELOPMENT	09/29/79 09/30/82	100000.	94537.	0.	64993
DTHN-80C-07002 MIDWEST RESEARCH INST.	ESTABLISHMENT & OPER. OF A NASS PSU - PHASE 2		0.	0.	0.	125700.
DTHN-81-C-17095 UNIVERSITY OF MICHIGAN-HSRI	INDEPTH ACCIDENT INVESTIGATIONS (NORTH CENTRAL REGION)	09/30/81	0.	0.	0.	15000.
DTHN22-80A-07244 SOUTHWEST RESEARCH INST.	ESTABLISHMENT & OPER. OF NASS PSU (DALLAS COUNTY) PHASE I		0.	0.	0.	136400.
DTHN22-80C-07001 MIDWEST RESEARCH INST.	ESTABLISHMENT & OPER. OF PSU FOR NASS - PHASE 2	04/25/80	0.	0.	0.	156700
DTHN22-80C-07005 APPLIED SCIENCE ASSOC.	ESTABLISHMENT & OPER. OF NASS PSU - PHASE 2	04/25/80	0.	0.	0	139200
DTHN22-80C-07167 KETRON, INC	IMPROVED CONSPICUITY TO THE SIDES AND REAR OF MOTORCYLES/MOPEDS	03/31/82	0.	0.	0.	10695.
DTHN22-80C-07233 FRANKLIN INSTITUTE	ESTABLISHMENT & OPER. OF NASS PSU - PHASE 3		0.	0	0.	137300

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MAJOR RESEARCH PROJECTS PERFORMED FOR
NHTSA UNDER CONTRACTS WHICH UTILIZED FY 1982 FUNDS

CONTRACT NUMBER CONTRACTOR	TITLE	START FINISH	PRE- FY 80	FY 80	FY 81	FY 82
DTHN22-80C-07237 KAPPA SYSTEMS, INC.	ESTABLISHMENT & OPER. OF A NASS PSU - PHASE 3 (SEATTLE)		0.	0.	0.	2060 0.
DTHN22-80C-07242 KAPPA SYSTEMS, INC.	NASS SITES 1-10 FT. LAUDERDALE		0.	0.	0.	185000.
DTHN22-80C-07243 FRANKLIN RESEARCH INST.	ESTABLISHMENT & OPER. OF NASS PSU - PHASE I DELAWARE		0.	0	0.	165400.
DTHN22-80C-07331 UNIVERSITY OF NORTH CAROLINA - HSRC	GENERAL CRASHWORTHINESS ACCIDENT DATA ANALYSIS	01/08/83	0.	0.	0.	10000.
DTHN22-80C-07455 CHI ASSOCIATES, INC.	PROCEEDINGS OF NINTH INTERNATIONAL WORKSHOP ON HUMAN SUBJECTS	04/01/82 04/01/83	0.	0.	0.	105714.
DTHN22-80C-07622 TEXAS TRANSPORTATION INSTITUTE,A&M	MOTORCYCLE BRAKE TEST PROCEDURE VALIDATION-80-R-07622	07/30/82	0.	0	0.	13269.
DTHN22-80C07557 SYSTEMS TECH INC.	STABILITY OF TOW VEHICLE-TRAILER COMBINATIONS UNDER CROSSWIND DISTURBANCE		0.	0.	0.	14707.
DTHN22-81C-07004 CALSPAN FIELD SERVICES,INC.	PEDESTRIAN INJURY CAUSATION STUDY FY81 OBLIGATION THROUGH OFM-BRADLEY	05/30/82	0.	0.	0.	35250.
DTHN22-81C-07071 UNIVERSITY OF NORTH CAROLINA	ENFORCEMENT AND PUBLIC INFOR STRATEGIES FOR THE DETERRENCE OF DWI	01/07/81	0.	0.	0.	143087.
DTHN22-81C-07085 CALSPAN FIELD SERVICES,INC.	INDEPTH ACCIDENT INVESTIGATIONS (NORTH EAST REGION)	09/30/81	0.	0.	0.	15000.
DTHN22-81C-17206 KAPPA SYSTEMS, INC.	NASS PSU (DADE) PHASE IV		0.	0.	0.	113900.
DTHN22-81C-27095 UNIVERSITY OF TENNESSEE	INDEPTH ACCIDENT INVESTIGATIONS (SOUTHERN REGION)	09/30/81	0.	0.	0.	15000
DTHN22-81C-37095 DYNAMIC SCIENCE, INC.	INDEPTH ACCIDENT INVESTIGATIONS (WESTERN REGION)	09/30/81	0.	0.	0.	15000.
DTHN22-81C-37206 KIMLEY-HORN & ASSOCIATES, INC.	NASS PSU (WAKE, N.C.) PHASE IV		0.	0	0.	113900.

MAJOR RESEARCH PROJECTS PERFORMED FOR
NHTSA UNDER CONTRACTS WHICH UTILIZED FY 1982 FUNDS

CONTRACT NUMBER CONTRACTOR	TITLE	START FINISH	PRE- FY 80	FY 80	FY 81	FY 82
DTHN22-81C-47206 ALLEN CORPORATION OF AMERICA	NASS SITES (MISSISSIPPI) PHASE IV		0.	0.	0.	113900.
DTHN22-81C-57206 SUNBELT RESEARCH CORPORATION	NASS SITES (LA) PHASE IV		0.	0.	0.	113900.
DTHN22-82A-07046 UNIVERSITY OF MICHIGAN	DEVELOP USER CONVENENCE PACKAGE FOR MVMA-2D MODEL BOA		0.	0.	0.	55688.
DTHN22-82A-37046 MGA RESEARCH CORPORATION	CAL-3D USER ENHANCEMENTS		0.	0.	0.	78098.
DTHN22-82C-07001 UNIVERSITY OF FLORIDA	UNIVERSITY OF SOUTHERN FLORIDA (19341) HIGHWAY SAFETY LITERATURE (158K)	08/31/82	0.	0.	0.	169341.
DTHN22-82C-07003 UNIVERSITY OF NORTH CAROLINA, HSRC	STATE AND NATIONAL ACCIDENT SUMMARY FILES		0.	0.	0.	49649.
DTHN22-82C-07043 AUTOMATED SCIENCES GROUP, INC.	MAINTENANCE OF BIOMECHANICS DATA BASE		0.	0.	0.	277518.
DTHN22-82C-07045 IIT RESEARCH INSTITUTE	OPTICAL ENGINEERING RESEARCH OF NEW AND AUTOMOTIVE GLAZING		0.	0.	0.	155302.
DTHN22-82C-07047 MGA RESEARCH CORPORATION	SIDE IMPACT PENETRATION OF DUMMIES OF VARIOUS SIZES		0.	0.	0.	69210
DTHN22-82C-07051 OPPORTUNITY SYSTEM, INC.	ANALYSIS OF BMCS ACCIDENT DATA-FILES		0.	0.	0.	79312.
DTHN22-82C-07052 ALLEN CORPORATION	EXECUTE NASS BASIC TRAINING CYCLE FOR PHASE IV TEAMS	01/19/82 06/19/83	0.	0.	0.	219818.
DTHN22-82C-07055 POLARIS RESEARCH & DEVELOPMENT	EARLY PREVENTION APPROACHES TO DETER DRINKING AND DRIVING		0.	0.	0.	163946.
DTHN22-82C-07058 COMSIS	ASSESSMENT OF PRE-CRASH SPEED ESTIMATES DEVELOPMENT OF SPEED PROTOCOL		0.	0.	0.	32114.
DTHN22-82C-07132 FITZPATRICK ENGINEERING	SYSTEMS ANALYSIS APPROACH TO RESTRAINT SYSTEMS INTEGRATION-SLED TEST SUPPORT		0.	0.	0.	22910.

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MAJOR RESEARCH PROJECTS PERFORMED FOR
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CONTRACT NUMBER CONTRACTOR	TITLE	START FINISH	PRE- FY 80	FY 80	FY 81	FY 82
DTNH22-80C-07142 ALDERSON RESEARCH LABORATORIES	DUMMY PURCHASES-PROCUREMENT OF ANTHRO-POMORPHIC TEST DEVICES			0.	0.	0. 42854.
DTNH22-82C-07186 SOUTHEASTERN MICHIGAN HEALTH ASSOC.	NEW CAR DEALER PROGRAM	02/02/82 01/15/83		0.	0.	0. 48448.
DTNH22-82C-07288 SAC-FEDERAL SYSTEMS	MAINTENANCE OF NCSA COMPUTER SYSTEMS			0.	0.	0. 70000.
DTNH22-82C-07282 KAPPA SYSTEMS, INC.	MAINTENANCE OF NCSA COMPUTER SYSTEMS			0.	0.	0. 130000.
DTNH22-82C-07283 INFORMATICS GENERAL CORPORATION	MAINTENANCE OF NCSA COMPUTER SYSTEM			0.	0.	0. 30000.
DTNH22-82C-07278 PRISM CORPORATION	8TH ANNUAL FARS WORKSHOP			0.	0.	0. 31319.
DTNH22-82C-07348 FITZPATRICK ENGINEERING	VALIDATE THE PASSENGER AIR CUSHION (PAC) MODEL			0.	0.	0. 12787.
DTNH22-82C-07358 THE PRISM CORP.	SUPPORT FOR NINTH INTERNATIONAL ESV CONFERENCE	08/30/82 01/31/83		0.	0.	0. 65859.
DTNH22-82C-07386 CALSPAN FIELD SERVICES, INC.	UPDATE SIDE IMPACT DUMMIES			0.	0.	0. 24990.
DTNH22-82X-07283 U.S. FEDERAL HIGHWAY ADMINISTRATION	DOT-BUREAU OF CENSUS NATIONAL PERSONAL TRANSPORTATION SURVEY			0.	0.	0. 250000.
DTNH-80C-07539 CHI ASSOCIATES	PEDESTRIAN IMPAIRMENT PILOT STUDY		04/31/82	0.	0.	0. 28594.
DTNH22-80C-07003 PRC PLANNING & ECONOMICS	NASS PRIMARY SAMPLING UNIT CONTRA COSTA COUNTY, CALIF	04/25/80 04/25/83		0.	137000.	80000. 101000.
DTNH22-80C-07004 KAPPA SYSTEMS, INC	NASS PRIMARY SAMPLING UNIT BERGEN COUNTY, NJ	04/25/80 04/25/83		0.	137000.	90000. 140700.
DTNH22-80C-07006 MICHIGAN, STATE OF, OHSP	NASS PRIMARY SAMPLING UNIT GENESSEE COUNTY, MICH	04/25/80 04/25/83		0.	137000.	90000. 117886.

MAJOR RESEARCH PROJECTS PERFORMED FOR
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CONTRACT NUMBER CONTRACTOR	TITLE	START FINISH	PRE- FY 80	FY 80	FY 81	FY 82
DTNH22-80C-07007 MANAGEMENT ENGINEERS	LACKAWANNA NASS PSU PHASE II P30	04/25/80 04/25/83	0.	137000.	90000.	110000.
DTNH22-80C-07008 ALLEN CORP. OF AMERICA	NASS-YUMA COUNTY, PA.	04/25/80 04/25/83	0.	122000.	90000.	60429.
DTNH22-80C-07009 KLD AND ASSOCIATES	NASS SITES 11-20 NORTH CAROLINA PHASE II P54	04/25/80 04/25/83	0.	122000.	90000.	21543.
DTNH22-80C-07010 ANALYTIC SYSTEMS	NASS-BERRIEN COUNTIES,MI.	04/25/80 04/25/83	0.	122000.	90000.	29940.
DTNH22-80C-07015 JAK INTERNATIONAL CORPORATION	NASS WITHIN PSU SAMPLE DESIGN	04/23/80 11/30/82	0.	83033.	100396.	30068.
DTNH22-80C-07035 KAPPA SYSTEMS,INC.	MAINTENANCE OF NCSA COMPUTER SYSTEMS	06/06/80 06/30/82	0.	197996.	255000.	95000.
DTNH22-80C-07042 SOUTHWEST RESEARCH INSTITUTE	ZONE CENTER C- SAN ANTONIO,TEXAS	11/08/79 02/08/83	0.	344000.	320000.	275958.
DTNH22-80C-07043 DYNAMIC SCIENCE, INC.	ZCD DOWNEY	11/08/79 12/08/83	0.	344000.	405000.	614334.
DTNH22-80C-07231 ANALYTIC SYSTEM,INC.	NASS-LAKE CO.,IND.	09/18/80 09/18/83	0.	60000.	152700.	147000.
DTNH22-80C-07232 KLD ASSOCIATES,INC. HUNTINGTON STATION,	NASS DATA COLLECTION TEAM SCHENECTADY, NY	09/18/80 09/18/83	0.	60000.	152660.	60000.
DTNH22-80C-07234 CALSPAN FIELD SERVICES,INC. BUFFALO, N.Y	NASS DATA COLLECTION TEAM ALLEGHENY CO. PA.	09/18/80 09/18/83	0.	60000.	152660.	102000.
DTNH22-80C-07235 ANALYTIC SYSTEMS,INC. VIENNA,VA.	NASS DATA COLLECTION TEAM BERNALILLO CO. NEW MEXICO	09/18/80 09/18/83	0.	60000.	152660.	82500.
DTNH22-80C-07236 MIDWEST RESEARCH INST.	NASS-HARDING COUNTY,S.DAKOTA	09/18/80 09/18/83	0.	60000	108000.	114815.
DTNH22-80C-07238 ELRICK AND LAVIDGE	NASS-ZAPATA CO. TEXAS	09/18/80 09/18/83	0.	60000.	109000.	91087.

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CONTRACT NUMBER CONTRACTOR	TITLE	START FINISH	PRE- FY 80	FY 80	FY 81	FY 82
DTNH22-80C-07239 DYNAMIC SCIENCE, INC PHOENIX, AZ	NASS DATA COLLECTION TEAM KANKAKEE CO., ILL.	09/18/80 09/18/83	0.	60000.	108000.	95193.
DTNH22-80C-07240 ALABAMA TRAFFIC SAFETY CENTER, UNIV. OF	NASS DATA COLLECTION TEAM TUSCALOOSA CO., ALA.	09/18/80 09/18/83	0.	60000.	152657.	105000
DTNH22-80C-07245 ALABAMA TRAFFIC SAFETY CENTER	ALABAMA NASS PSU PHASE I PS2	09/30/80 09/30/83	0.	40000.	185000.	102000.
DTNH22-80C-07246 MANAGEMENT ENGINEERS, INC.	ERIE PHASE I P27	09/30/80 09/30/83	0.	40000.	120000.	31760.
DTNH22-80C-07247 MICHIGAN OFFICE OF HIGHWAY SAFETY PLANNI	NASS DATA COLLECTION TEAM MUSKEGON, MICH.	09/30/80 09/30/83	0.	40000.	167000.	86853.
DTNH22-80C-07248 KLD ASSOCIATES, INC.	ULSTER PHASE I P26	09/30/80 09/30/83	0.	40000.	167000.	86500.
DTNH22-80C-07249 TEXAS A&M RESEARCH FOUNDATION	ARKANSAS PHASE I P53	09/30/80 09/30/83	0.	40000.	167000.	58943.
DTNH22-80C-07250 CALSPAN FIELD SERVICES, INC.	NASS DATA COLLECTION TEAM SAN JUAN CO., WASH.	09/30/80 09/30/83	0.	40000.	120000.	72746.
DTNH22-80C-07278 LAWRENCE JOHNSON AND ASSOCIATES	A STUDY OF FACTORS AFFECTING RESTRAINT USAGE IN AUTOMOBILES	09/31/82	0.	0.	0.	57331.
DTNH22-80C-07283 OPINION RESEARCH	RESTRAINT SYSTEM USAGE IN THE TRAFFIC	09/29/80 2YR 3MO	0.	0.	9735.	65501.
DTNH22-80C-07439 PAEON, SIMS & SMITH AND ASSOC.	MOTIVATION OF EMPLOYERS TO ENCOURAGE THEIR EMPLOYEES TO USE SAFETY BELTS PH 2	09/30/80 04/30/82	0.	0.	19889.	79516.
DTNH22-80C-07502 HSRI-UNIV OF MICHIGAN	STATE OF THE ART DUMMY	06/21/80 09/15/80	0.	0.	187501.	90640.
DTNH22-80C-07561 WESTAT, INC.	NASS ESTIMATION PROCEDURES	09/23/80 03/31/83	0.	50000.	50000.	94845.
DTNH22-80C-17062 ABT ASSOCIATES, INC.	TREND MONITORING AND EXPLORATORY ANALYSIS	08/24/81 12/01/81	0.	0.	200000.	222000.

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NHTSA UNDER CONTRACTS WHICH UTILIZED FY 1982 FUNDS

CONTRACT NUMBER CONTRACTOR	TITLE	START FINISH	PRE- FY 80	FY 80	FY 81	FY 82
DTNH22-80C-27035 COMPUTER DATA SYSTEMS	EXTENSION OF CONTRACT DTNH22-80-27035;ADDITIONAL FUNDING	06/06/80 06/30/82	0.	84000.	130826.	50000.
DTNH22-80C-37035 SCIENCE MANAGEMENT CORP.	MAINTENANCE OF NCSA COMPUTER SYSTEMS SCIENCE MANAGEMENT CORP. TASK ORDERS	06/05/80 06/30/82	0.	83000.	95000.	50000.
DTNH22-80C-7579 AUTOMATED SCIENCES GROUP, INC.	RESEARCH AND DEVELOPMENT CONTRACT PRE- AWARD CONTROL AND COORDINATION SYSTEM	10/01/81 03/31/82	0.	0.	0.	21603.
DTNH22-81C-07053 AUTOMATED SCIENCES GROUP, INC.	CRASH TEST DATA BASE AND STUDIES	01/01/82 04/30/82	0.	0.	0.	92000.
DTNH22-81C-07085 MCR TECHNOLOGY, INC.	MODIFIED INTEGRATED VEHICLE M/C PHASE II	12/11/80 08/21/82	0.	0.	606818.	49997.
DTNH22-81C-07100 CALSPAN CORPORATION	EXTENDED TIRE TESTING AND ANALYSIS	08/31/82 12/08/82	0.	0.	127619	49592.
DTNH22-81C-07205 KAPPA SYSTEMS	ESTABLISHMENT & OPER. OF PSU FOR NASS PHAN IV COOK CO.	09/30/81	0.	0.	49042.	154910.
DTNH22-81C-07206 KLD ASSOCIATES, INC.	PRIMARY SAMPLING UNITS WASHINGTON CO., R.I.	09/30/81 09/30/83	0.	0.	49042.	74900.
DTNH22-81C-07337 VECTOR ENTERPRISE, INC.	FIELD TEST EVALUATION OF REARVIEW MIRROR SYSTEMS FOR COMMERCIAL VEHICLES		0.	0.	101805.	99998.
DTNH22-81C-07364 SMALL BUSINESS ADMINISTRATION	PRIMARY SAMPLING UNITS- UNSPECIFIED SITE	08/20/81 08/31/84	0.	0.	49042.	113900.
DTNH22-81C-07365 SMALL BUSINESS ADMINISTRATION	PRIMARY SAMPLING UNIT- UNSPECIFIED SITE	09/16/81	0.	0.	49042.	113900.
DTNH22-81C-07386 UNITED MANAGEMENT SYSTEMS	NASS PSU PRIMA COUNTY PHASE IV	09/30/81 09/30/84	0.	0.	49042.	154910.
DTNH22-81C-07499 WILSON-HILL ASSOCIATES	RESEARCH AND DEVELOPMENT OF CRASH3		0.	0.	0.	53014.
DTNH22-81C-07583 CHI ASSOCIATES, INC.	SMALL FLEET OUTREACH	09/30/83	0.	0.	0.	20000.

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MAJOR RESEARCH PROJECTS PERFORMED FOR
NHTSA UNDER CONTRACTS WHICH UTILIZED FY 1982 FUNDS

CONTRACT NUMBER CONTRACTOR	TITLE	START FINISH	PRE- FY 80	FY 80	FY 81	FY 82
DTNH22-81C-17085 VOLKSWAGENWERK.AG	REVISED PHASE I.MIV-VW	12/11/80 05/31/82	0.	0.	1147895.	358700.
DTNH22-81C-17205 GOODELL-GRIVAS, INC.	PSU-WAYNE COUNTY,MICHIGAN	09/30/81 09/30/84	0.	0.	49042.	104910
DTNH22-81C-27205 KLD ASSOCIATES,INC.	PRIMARY SAMPLING UNITS WAUKESHA COUNTY,WISCONSIN	09/30/81	0.	0.	49042.	72900.
DTNH22-81C-27206 KLD ASSOCIATES,INC.	NASS SITES 31-52	09/30/81 09/30/83	0.	0.	49042.	124910.
DTNH22-81C-37205 MIDWEST RESEARCH INST.	PHASE IV GREEN MISC	09/30/81 09/30/84	0.	0.	49042.	75900.
DTNH22-81C-47205 MICH STATE POLICE	ESTABLISHMENT & OPER OF PSU FOR NASS PHASE IV WASHTENAW	09/30/81	0.	0.	49042.	100910.
DTNH22-81C-57205 INDIANA UNIV. FOUNDATION	PRIMARY SAMPLING UNITS BENTON,JASPER,NEWTON,WHITE COUNTIES,INDI	09/30/81	0.	0.	49042.	97436.
DTNH22-81C-67205 MIDWEST RESEARCH INSTITUTE	PRIMARY SAMPLING UNITS APPANOOSE,MONROE,LUCAS,WAYNE,DECATUR,CLA	09/30/81	0.	0.	49042.	113900.
DTNH22-81C-67206 PRC PLANNING & ECONOMICS	PSU L.A.CITY PHASE IV	09/30/81 09/30/84	0.	0.	49042.	154910.
DTNH22-81C-77205 KLD ASSOCS.	PHASE IV KINGS	09/30/81	0.	0	49042.	154910.
DTNH22-81C-77206 DYNAMIC SCIENCE, INC.	PRIMARY SAMPLING UNITS LOS ANGELES CO., CALIF	09/30/81 09/30/84	0.	0.	49042.	154910.
DTNH22-81C-87088 CALSPAN ADVANCED TECHNOLOGY CENTER	DEVELOP TEST DEVICES AND PROCEDURES-VEHICLE AGGRESSIVENESS	12/18/80 12/18/81	0.	0.	186854.	16087.
DTNH22-81C-87205 CALSPAN FIELD SERVICES,INC.	PHASE IV BOSTON	09/30/81 09/30/83	0.	0.	49042.	154910.
DTNH22-81C-87206 PRC PLANNING & ECONOMICS,INC.	PHASE IV DALLAS CITY	09/30/81	0.	0.	49042.	154910.

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NHTSA UNDER CONTRACTS WHICH UTILIZED FY 1982 FUNDS

CONTRACT NUMBER CONTRACTOR	TITLE	START FINISH	PRE- FY 80	FY 80	FY 81	FY 82
DTNH22-81C-07205 CALSPAN FIELD SERVICES, INC.	PHASE IV BUFFALO	09/30/81 09/30/83	0.	0.	49042.	109910.
DTNH22-82C-07039 NATIONAL ACADEMY OF SCIENCES, TRB	TRB SUPPORT FOR NHTSA RESEARCH AND DEVEL		0.	0.	0.	100000.
DTNH22-82C-07041 MGA RESEARCH CORP.	PHRASE II-TEST SITE INSTRUMENTATION STUDY		0.	0.	0.	172049.
DTNH22-82C-07190 SYSTEMS TECHNOLOGY, INC.	NHTSA FACILITIES MAINTENANCE	01/31/82 01/31/83	0.	0.	0.	10000.
DTNH22-82C-07237 DYNAMIC SCIENCE, INC.	LOAD CELL BARRIER DATA COLLECTION/ 1981 NEW CAR ASSESSMENT	07/01/82	0.	0.	0.	34246.
DTNH22-82C-07261 COMPUTER DATA SYSTEMS, INC.	MAINTENANCE OF NCSA COMPUTER SYSTEM		0.	0.	0.	75000
MASTER LOCAL PURCHASE SRL-15	GE TIME SHARE, SRL-15	11/19/79 09/30/81	-303190.	2114496.	1672212.	116736
PPA 234 TRANSPORTATION SYSTEMS CENTER	ALCOHOL COUNTERMEASURES SUPPORT PPA 234		0.	0.	0.	35000.
PPA 236 TSC	POLK REGISTRATION DATA--PPA 236		0.	0.	0.	75000.
PPA 267 TSC	HARD COPY STORAGE PPA 267		0.	0.	0.	275000.
PPA 268 TRANSPORTATION SYSTEMS CENTER	U.S. MOTOR VEHICLE SAFETY INFORMATION SYSTEM PPA#268 MULTI-YEAR		0.	0.	0.	125000.
PPA 270 TRANSPORTATION SYSTEMS CENTER	HIGHWAY ACCIDENT STATISTICS ANALYSIS PPA #270		0.	0.	0.	291000.
PPA 272 TRANSPORTATION SYSTEMS CENTER	ECONOMIC MARKET SUPPLY AND DEMAND		0.	0.	0.	455000.
PPA 274 TRANSPORTATION SYSTEMS CENTER	TSC SUPPORT AND DOCUMENTATION PPA-274		0.	0.	0.	635000.

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FPA 276 TRANSPORTATION SYSTEMS CENTER	TSC SUPPORT AND DOCUMENTATION (LY 6) FPA 276		0.	0.	0.	250000.
FPA 276-11 TRANSPORTATION SYSTEMS CENTER	GENERAL ENGINEERING SUPPORT TSC-11 FPA 276		0.	0.	0.	70000.
FPA 276-21 TRANSPORTATION SYSTEMS CENTER	ENGINEERING ANALYSIS TSC-21 FPA 276-21		0.	0.	0.	700000.
FPA 276-22 TRANSPORTATION SYSTEMS CENTER	ADVANCED CT INSTRUMENTATION TSC-22 FPA-276-22		0.	0.	0.	100000.
FPA 276-31 TRANSPORTATION SYSTEMS CENTER	ENGINEERING SUPPORT TO NHTSA CRASH- WORTHINESS RESEARCH FPA 276-31		0.	0.	0.	90000.
FPA 276-32 TRANSPORTATION SYSTEMS CENTER	ENGINEERING SUPPORT FOR NHTSA RESEARCH FPA-276-32		0.	0.	0.	100000.
FPA 276-33 TRANSPORTATION SYSTEMS CENTER	ENGINEERING SUPPORT FOR NHTSA RESEARCH FPA 276-33		0.	0.	0.	75000.
FPA 276-34 TRANSPORTATION SYSTEMS CENTER	HEAD IMPACT MEASUREMENT FPA#276-34		0.	0.	0.	75000.
FPA 276-41 TRANSPORTATION SYSTEMS CENTER	CVS UPGRADE/APPLICATION (TSC-41) ENGINEERING SUPPORT---FPA 276-41		0.	0.	0.	190000.
FPA 276-42 TRANSPORTATION SYSTEMS CENTER	STEERING SYSTEM SIMULATION ENGINEERING SUPPORT FPA 276-42		0.	0.	0.	20000.
FPA 277 TRANSPORTATION SYSTEMS CENTER	TRANSPORTATION SYSTEMS CENTER FPA #HS-277		0.	0.	0.	35000.
FPA 280 TRANSPORTATION SYSTEMS CENTER	TSC SUPPORT AND DOCUMENTATION FPA 280		0.	0.	0.	50000.
FPA 281 TRANSPORTATION SYSTEMS CENTER	DEFROST/DEFOG FPA 281		0.	0.	0.	100000.
FPA 282 TRANSPORTATION SYSTEMS CENTER	TEST METHODOLOGY FOR DETECTION OF BELT-EDGE SEPARATION FPA 282		0.	0.	0.	20100.

MAJOR RESEARCH PROJECTS PERFORMED FOR
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CONTRACT NUMBER CONTRACTOR	TITLE	START FINISH	PRE- FY 80	FY 80	FY 81	FY 82
FPA 284 TRANSPORTATION SYSTEMS CENTER	DRIVER FPA 284			0.	0.	0. 135000.
FPA 285 TRANSPORTATION SYSTEMS CENTER	FPA 8285 DWI COUNTERMEASURES			0.	0.	0. 122000.
FPA 286 TRANSPORTATION SYSTEMS CENTER	PUBLIC ATTITUDES TOWARD LEGISLATION			0.	0.	0. 100000.
FPA 287 TRANSPORTATION SYSTEMS CENTER	INSURANCE INCENTIVES FPA 287			0.	0.	0. 155000
FPA 288 TRANSPORTATION SYSTEMS CENTER	FEASIBILITY ANALYSIS OF DRIVER SIMULATOR			0.	0.	0. 140300.
FPA 289 TRANSPORTATION SYSTEMS CENTER	STABILITY AND HANDLING OF FRONT WHEEL DRIVE VEHICLES			0.	0.	0. 100000.
FPA 290 TRANSPORTATION SYSTEMS CENTER	BRAKE SYSTEM IN-FLEET EVALUATION PROGRAM			0.	0.	0. 320000.
FPA 291 TRANSPORTATION SYSTEMS CENTER	SAFETY & OTHER PERFORMANCE DATA			0.	0.	0. 300000.
FPA 292 TRANSPORTATION SYSTEMS CENTER	CYCLIST SAFETY TRAINING PROGRAM			0.	0.	0. 140000.
FPA 293 TRANSPORTATION SYSTEMS CENTER	FMVSS 108 HARMONIZATION/UPGRADE FPA 293			0.	0	0. 88900.
FPA 295 TRANSPORTATION SYSTEMS CENTER	ANALYSIS OF TIRE TREAD WEAR DATA FPA 295			0.	0.	0. 50000.
FPA-271 TRANSPORTATION SYSTEMS CENTER	INFORMATION SYSTEMS EVALUATION FPA-271			0.	0.	0. 300000.
FPA-273 TRANSPORTATION SYSTEMS CENTER	FPA8273—MOTOR VEHICLE CHARACTERISTICS AND PERFORMANCE			0.	0.	0. 200000.
FPA-294 TRANSPORTATION RESEARCH CENTER	RAPID ALCOHOL RESEARCH EXPERIMENTS			0.	0.	0. 11000.

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RD 1680-4 VEHICLE RESEARCH & TEST CENTER	NEW ENERGY CONCEPTS TESTING -PREVIOUSLY 4811BJ.K.L-RD 1680-4			0.	0.	0. 108535.
SRL 21 VEHICLE RESEARCH & TEST CENTER	ON BOARD PORTABLE DATA ACQUISITION PROCESSING FOR VEHICLE TESTING-SRL 21			0.	0.	0 11312.
SRL 22 VEHICLE RESEARCH & TEST CENTER	VEHICLE TRACKING SYSTEM SRL-22			0.	0.	0. 38762.
SRL 26 VEHICLE RESEARCH & TEST CENTER	LIGHT TRUCK SIDE ~~~~T.P.A.=#359,167. STRUCTURE EVALUATION SRL 26			0.	0.	0. 112658.
SRL 29 VEHICLE RESEARCH & TEST CENTER	STATE OF THE ART DUMMY SELECTION (154K) SRL-29			0.	0.	0. 151427.
SRL 36 VEHICLE RESEARCH & TEST CENTER	PRELIMINARY DEVELOPMENT- PEDESTRIAN THORACIC IMPACT SRL 36			0.	0.	0. 44348.
SRL 39 VEHICLE RESEARCH & TEST CENTER	PEDESTRIAN ACCIDENT RECONSTRUCTION SRL-39			0.	0.	0. 108477.
SRL 40 VEHICLE RESEARCH & TEST CENTER	ANALYSIS AND RECONSTRUCTION OF HUMAN SURROGATE TESTS/SRL 40			0.	0.	0. 95410.
SRL 42 VEHICLE RESEARCH & TEST CENTER	DUMMY MANAGEMENT (166K) SRL-42			0.	0.	0. 131303.
SRL 47 VECHICLE RESEARCH & TEST CENTER	SEAT BELT COMFORT AND ~~ CONVENIENCE COMPATIBILITY SRL-47			0.	0.	0. 26308.
SRL 49 VEHICLE RESEARCH & TEST CENTER	IMPACT TEST OF GLAZING AND PADDING SRL 49			0.	0.	0. 28582.
SRL 51 VEHICLE RESEARCH & TEST CENTER	SMALL CAR RESTRAINT SYSTEM STUDY (SRL-51 SUPPORT) MASTER	11/15/81		0.	0.	0. 48459.
SRL 54 VEHICLE RESEARCH & TEST CENTER	HEAVY VEHICLE HANDLING/ STABILITY(FULL SCALE TESTING)			0.	0.	0. 75482.
SRL-12 OSU	EVALUATION OF SIDE IMPACT DUMMY SRL-12	10/01/78 12/31/82	18363.	0.	0.	0. 52948.

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CONTRACT NUMBER CONTRACTOR	TITLE	START FINISH	PRE- FY 80	FY 80	FY 81	FY 82
SRL-32 VEHICLE RESEARCH & TEST CENTER	HEAVY DUTY VEHICLE FOUNDATION BRAKE RESEARCH (SRL-32)		0.	0.	81000.	88524.
SRL-34 OHIO STATE UNIVERSITY SRL-34	HYDRAULIC BRAKE RESEARCH SRL-34	03/12/81	0.	0.	282000.	127269.
SRL-6 LOCAL PURCHASES	AIR BRAKE RESEARCH PROGRAM SRL/S LOCAL PURCHASE		0.	0.	41850.	138687.

D-15

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